BULLETIN of the
SCHOOL OF EDUCATION
INDIANA UNIVERSITY

The Local School Facilities Survey

by

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FOREWORD

Three events which have occurred during the last few years have caused school authorities to look with apprehension to the future, namely, (a) the unprecedented increase in the birth rate in America, especially since 1947, (b) the backlog of needed school buildings since the close of World War I, and (c) the great demand for the public tax dollar. These happenings have led many communities to conduct school building surveys. In some cases a professional survey team has been invited to make the survey and in other cases the local school authorities have conducted their own surveys. Because of the great demand for a manual to explain how a school building survey is conducted, this booklet has been prepared by the Division of Research and Field Services of the School of Education of Indiana University.

It should be pointed out from the outset that the procedure described herein does not cover the area of a comprehensive study. It is limited to a study of present and future school building needs. In order to determine these needs, it is necessary to ascertain the future enrollment and residential trends. Adequate planning for new school buildings and facilities cannot take place until after these factors and the financial ability of the community have been determined.

The reader can follow the procedures described in the manual with considerable confidence. The text has been written by a staff of Indiana University school men who have conducted many school surveys in both small and large schools. Chapters 1, 2, 3, and 8 were prepared by Dr. Harold H. Church, Director of the Division of Research and Field Services; Chapter 4 by Dr. William H. Fox, Assistant Director of the Division of Research and Field Services; Chapter 5 by Dr. Paul W. Seagers, School Building Consultant; Chapter 6 by Dr. Maurice E. Stapley, Executive Secretary of the Indiana School Boards Association; and Chapter 7 by Dr. W. Monfort Barr, specialist in school finance.

In addition to the above-mentioned staff members, others who made the preparation of this bulletin possible, and whose

assistance is gratefully acknowledged include Miss Kathleen Dugdale, Editor of Publications in Education, who edited the manuscript; Harold L. O'Neal, administrative assistant, who helped in preparing the manuscript; and graduate assistants James B. Aiken, George Lucht, and Clifford P. Hooker. Appreciation is also expressed to Dr. Wendell W. Wright, Dean of the School of Education and Vice-President of Indiana University, for his encouragement and support.

HAROLD H. CHURCH

CHAPTER 1

NEED FOR PLANNING

If ever there was a need for organized planning in the public schools, that time is now. Wherever one turns there is evidence of intensive planning taking place in business, industry, and other economic and social organizations in the community. The public has the right to expect those who are charged with the responsibility for public education to plan just as carefully. Far too frequently one finds buildings located on inadequate sites that are crowded, non-expansible, and not too well planned. In order to avoid these mistakes it is important that boards of education and school administrators plan wisely and well before undertaking any new building program.

What are the unusual building problems which confront the elementary and secondary schools today? Briefly, there are three.

One problem stems from the greatly increased birth rate in America from 1940 to 1953, especially since 1948. During this last five-year period more children have been born than in any other five-year period in the history of the country. These children will enter the public and private elementary schools six years after their birth and will place an increasing load on school buildings, most of which are already overflowing their capacity.

The second problem comes from the fact that only the most urgent school building needs have been provided for during and since World War I because of the scarcity of building materials and skilled manpower. Consequently, there is a tremendous backlog of needed new school buildings. There is also a great need for replacement of obsolescent, worn-out, and outmoded buildings. A modern school program cannot be conducted well in a building which was designed for education 50 years ago. The public cannot expect an educational program adapted to the needs of children living in this modern age if the pupils are forced to be educated in schools designed for a horse-and-buggy age.

The third problem arises from the increased demand for the public tax dollar to support an exceedingly costly war and to meet increasing local needs. The taxpayers, who pay the bill, will insist that school authorities study the needs carefully before they will agree to provide funds for new school buildings, especially since most states place the burden of securing funds for schools on the shoulders of local holders of real and personal property.

School planners must look ahead and recognize the trends in education so that the school buildings they erect will be as useful as possible 25 years hence. Changes that may be considered trends today are: the school building is beginning to be used as a community center; the public school is being extended to include kindergarten and the junior college; classes are smaller but classrooms are larger and more functional; the use of audio-visual aids is being increased; more emphasis in the curriculum is being placed on science, music, crafts, and art in the elementary schools; and there is greater use of rooms for libraries, noonday lunches, and auditorium activities.

The modern school is a part of the whole community and not an institution set apart from the community. The whole community goes to school, and it becomes necessary to assay the factors in the community which have a bearing on the educational needs of the future. Few school authorities have these facts at hand unless a survey has just been completed or a continuous survey is being carried on. With the constant need for providing new school buildings or replacing old ones, a school building survey is almost imperative if the local educational needs are to be met.

Who are those who must assume the responsibility for planning the school buildings of tomorrow? They are many, but the chief responsibility rests with the chief executive officer of each school corporation. His role is not that of planner but rather that of one who stimulates, organizes, and coordinates the work of the people in his school and community and who becomes a part of the survey team insofar as his time will permit. Closely behind the chief executive official is the local board of education, which shares the responsibility. Its function is to authorize and approve the survey, provide the funds to conduct it, appraise the findings,

and become a part of the survey team insofar as the time of its members will permit.

The community survey team can be visualized as a series of concentric circles (see Figure 1.1). In a town or city school

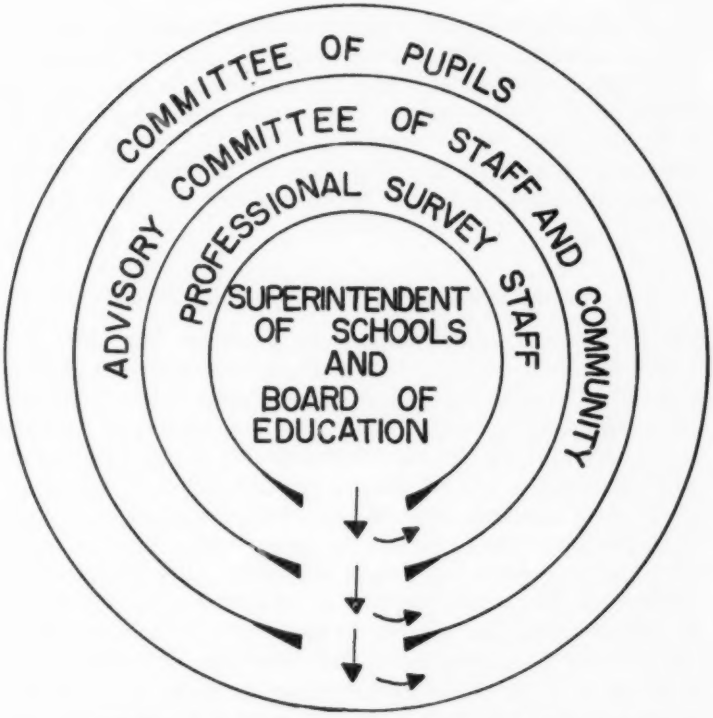
COMMITTEE OF PUPILS
ADVISORY COMMITTEE OF STAFF AND COMMUNITY
PROFESSIONAL SURVEY STAFF
SUPERINTENDENT OF SCHOOLS AND BOARD OF EDUCATION

Figure 1.1. The School Planning Committee in a Town or City School System

system the superintendent of schools and the board of education are in the center of the circle, the professional survey staff is in the next largest circle, the staff and the community in the next circle, and the pupils (who assist in the survey) are in the outer circle. Each has a contribution to make in seeking out the facts and needs of the community and the school. With many in the community being given an opportunity to participate in the planning, the building should satisfy the needs of most of those who will use it.

Besides, the project will be given greater support by the community and a greater spirit of understanding, confidence, and good feeling will prevail if the project is a community affair.

CHAPTER 2

THE SCHOOL SURVEY

School surveys vary according to their purpose and scope. In general they may be classified into three principal types: (a) the comprehensive survey, which is the most complete of the three; (b) the educational survey; and (c) the school building survey. The kind of survey to be used in a given school is determined by the need, the urgency of the need, the purpose, and the amount of money available to conduct the survey.

The Comprehensive and Educational Surveys

The most desirable and most complete study of the schools, the comprehensive survey, is used far too little. School planners too frequently lag in their planning until a building crisis is upon them, and then there is not sufficient time available to conduct a comprehensive study. The comprehensive survey usually includes (a) a study of the educational aims, outcomes, purposes, needs, curriculum, methods, tools of instruction, and effectiveness of teaching; (b) an analysis of the administrative offices and procedures of the schools; (c) a study of the financial policies and procedures; (d) an analysis of the policies, practices, and procedures used in administering the program of operation and maintenance of the physical plant; (e) a study of pupil transportation; (f) a study of the policies and practices relating to staff and pupil personnel; and, finally, (g) a study of the school plant and all of the factors (such as community background, census, enrollment, and finance) which relate to the location, condition, kind, and number of school buildings. No less than three years should be taken to complete a comprehensive survey, since the committee should have time for committee study, reflection, and action. A comprehensive survey should be followed by continuous periodic studies and appraisal.

The educational survey and building survey together make up the comprehensive survey. The educational survey

covers the educational program of the school and all related activities, policies, practices, and procedures which have any bearing upon the educational program. It should precede the building survey so that all of the facts will be available when the new school buildings are planned.

The School Building Survey

The school building survey is the most common kind of survey. It usually consists of (a) a study of the local community and the schools as they relate to school building structure; (b) a census and enumeration study of all preschool and in-school pupils for the purpose of predicting the future enrollment (usually for a period of 10 years); (c) a study of the financial ability and effort of the school community, including a study of bonds, taxes, wealth, and indebtedness of the school corporation; and (d) a study of the present school buildings and sites. The recommendations are made on the basis of the above findings.

Methods of Making a Survey

There are several methods of making a school survey, each of which has certain advantages and disadvantages. Three methods are suggested, namely:

1. A survey by educational and school building consultants
2. A self-survey conducted by members of the local educational staff
3. A cooperative survey conducted by members of the local staff and a team of educational and school building consultants.

Briefly, the advantages and disadvantages of each method are as follows:

1. The survey by outside educational consultants is the most costly, but it is very effective and objective. It has the advantage of bringing educational and building specialists into the local school system for the purpose of projecting a modern educational program and a school building plan in a relatively short time. Small communities usually have

few occasions to undertake an extensive school building program and therefore, when the occasion does arise, they will do well to seek out the services of well qualified specialists in the field. Frequently the public is reluctant to follow the recommendations of a local committee, even though its recommendations are good, but it generally will consider favorably the recommendations of a committee of consultants brought into the community. This procedure generally transfers criticism from the local school administration to the consultants, thereby avoiding any possible embarrassment if the community has a tendency to be unduly critical.

2. A self-survey made by members of the school staff has many advantages and some limitations. One of the chief advantages is that it is an excellent means of stimulating the professional growth of members of the school staff. Even though staff members may be untrained and may be apt to arrive at faulty conclusions, they will have gone through a process of change and awakening which will more than offset any mistakes they may make. If the school official is not familiar with the techniques and methods of a survey, he can refer the recommendations of the committees to educational consultants in state universities for analysis and appraisal. Teachers, like others, resist change. If they participate in the survey and help to make recommendations involving newer methods and procedures, they will likely adjust to change with little or no resistance, and soon they may blossom into alert and growing teachers. This method should appeal to educators because it is based on a sound procedure of "learning by doing."

3. A cooperative survey made by educational consultants together with the members of a committee composed of the school staff and the community embodies the advantages of both of the above methods. It is not as costly as the survey conducted by educational specialists alone. It has the advantage over the self-survey plan of avoiding faulty and embarrassing conclusions. It also provides an opportunity for the staff to rub shoulders with educational specialists and thereby to become familiar with modern educational trends and practices. The cooperative survey should be used far more frequently than it is.

Trends in Planning School Buildings

In laying out plans for a new school building, there is a very desirable trend toward having the school staff and the community participate and plan together. Members of the school staff who work in the classroom daily are more likely to know how rooms can be laid out to function more effectively and how they may become better educational workshops than is either the school official or the architect. Also, the public has an opportunity to assist in planning the community wing for adult use which is found in most modern schools. Suggestions made by the teaching staff and the public may be guided by consultants, school officials, and the architect so that functional departments can be designed. An important by-product of this wider participation in school building planning is the increased pride and interest manifest by the public and the staff. Inasmuch as they have an opportunity to participate in the planning, the building becomes *theirs* rather than the building of the educational specialists and the architects.

Another desirable trend is that of planning one classroom or department at a time. For want of another name, this kind of planning might be called Mosaic planning because of its analogy to the blocks in a Mosiac floor. In following this plan, each classroom, laboratory, or department is planned cooperatively by the architect and the classroom teachers who use the rooms. After all departments have been planned, they are incorporated by the architect into the floor plans of the new building so as to function as effectively as possible when used by the teaching staff and the public. Under this plan the building is planned from the inside out, and the exterior form of the building must be determined by the functional needs of the school. Too often in the past the architect planned the school building only so that it would have symmetry, balance, and eye appeal from the outside, and the educational program had to be subordinated to the building structure.

Basic Requirements for Reorganization

A school survey often leads to the reorganization of smaller school districts into a larger and better functioning school corporation. In reorganization it is important to dis-

tinguish between an administrative unit and an attendance area.

An administrative unit is a school district or a school corporation operating under a single board of education. It may be either large enough to include many attendance areas or small enough to include only one attendance area. An attendance area is the territory included in one school district which is served by one school and administered by a principal but which may be a part of a larger school corporation. In rural districts the attendance area may be as large as one township, and in the city it may represent a ward or district. In either case the attendance area is within one school corporation.

With the increasing number of good roads and the development of transportation, it is possible and desirable to increase the size of the administrative unit. Small administrative units often limit the quality and kind of educational program which can be offered. They are usually more costly than larger ones and often must be subsidized by the state. When an administrative unit is too small to be operated economically, every effort should be put forth to reorganize the territory into an administrative unit which is large enough to include the minimum number of pupils to guarantee a good educational program and to have a tax base broad enough to support a sound school program without having to rely upon a subsidy from the state.

Some have raised the question as to how large a school corporation should be in order to support a good educational program. Recently, several states have conducted state-wide studies and have arrived at answers to this question. The National Commission on School District Organization has summarized these state studies and endorsed the findings of the state committees. These findings are adopted and summarized from a report by the National Commission of School District Reorganization (12)* and are given below as a guide to school planning committees.

The administrative unit should be large enough:

1. To have sufficient pupils to justify an adequate instructional program through grade 12.

* Numbers in parentheses refer to references in a numbered bibliography, pages 79 to 82.

2. To have sufficient wealth to afford desirable school services that are not provided by the state foundation program.

3. To justify the employment of professionally trained school leadership in the administration and supervision of the local schools.

4. To include all the geographical area of the socio-economic community (i.e., trade areas as well as corporate limits or neighborhood concepts of communities).

5. To permit economical bus scheduling if transportation is necessary.

6. To allow flexibility in locating school centers and attendance areas.

7. To have fiscal independence.

Standards for a desirable school attendance area are described in *American School Buildings* (52:42-43), which states that such an area should:

1. Be located so that no child is unduly fatigued upon his arrival at school. The following maximum limitations are considered reasonable for normal circumstances, when traffic hazards, population density, or road conditions do not dictate modifications:

   Walking distance (one way)

   Elementary pupils, three quarters of a mile
   Junior high pupils, one and one-half miles
   Senior high pupils, two miles

   Travel time (one way)

   Elementary pupils, 30 minutes
   Secondary pupils, one hour

2. Be located so that permanent neighborhoods and small communities can use the school as a natural community center.
3. Be located so that ultimately the smallest number of children require transportation and the greatest number of people have ready access to the school site.
4. Be located for maximum safety to health and life, and for the most economical provision of sanitation and public utilities.
5. Be flexible enough to permit adaptations in organization, such as changing to or from K8-4, K6-6, K6-3-3, and the like.
6. Vary in size with the population density, roads, ages of children, and similar factors.
7. Be large enough so that each school will provide a minimum of one teacher per grade in the elementary school and a minimum of three teachers per grade in the secondary school.

The Professional Survey Staff

As previously mentioned, the local school planners will profit greatly by employing an experienced professional sur-

vey staff to assist in conducting a school survey. This staff should be selected carefully. It should consist of educators who have had successful public school experience or the equivalent thereof and broad training in the field of public school administration. Further, it should be composed of men of good and mature judgment who have had wide experience in conducting school surveys and who are recognized as leaders in their field.

There are usually three sources to which school planners can look for help in securing professional survey staffs. In some states the state department of education has personnel available for assisting the local school planning team. Such personnel is available often at no cost to the local community; if a charge is made for the service, it usually consists only of expenses of the personnel conducting the survey.

Another source of professional assistance is the state university, which is likely to have a trained survey team or competent consultants available upon request. A nominal charge is usually made for the services of the consultant or the team. In many cases, however, a charge is made only for the actual traveling and living expenses of the staff while away from the campus plus the cost of additional secretarial help, materials, supplies, and preparation of the report.

The third source of help is the independent professional survey person whose services can be obtained for a professional fee plus all expenses involved in the survey. This is the most costly of the three plans.

Although one professional person may be very competent to conduct a survey, a survey staff is still better since it usually consists of highly trained specialists. When it comes to preparing the recommendations and offering suggestions to the local planners, it is especially advantageous to have secured the judgment and opinion of more than one person. A professional team conducting a school building survey might include a specialist in socio-economics to study the local community background, a specialist in public school finance, a school building consultant, and an educational research specialist. The survey staff should be directed by a person who has had wide and successful experience in school administration and research. The services of such a staff should prove to be invaluable to local school planning authorities.

CHAPTER 3

THE COMMUNITY BACKGROUND STUDY

A public school system cannot operate in a vacuum. It is a part of the community in which it functions and it will satisfy the educational needs of the community in direct proportion to the degree to which it builds its program around the life and culture of the community. It will become more and more a part of the community as its influence reaches out into the life of the community and as the community life flows back into the life of the school. When its influence approaches the saturation point, the school is beginning to fulfill its destiny and the public gains confidence in and respect for the school personnel, administration, and the planning bodies.

If the school system is an integral part of the community, there are many factors in the community that the school planner or architect must take into consideration when contemplating school building plans for the future. These can best be understood when they are considered in relation to the kind, size, and location of school buildings.

A school system is organized by grades in order that it can be efficiently administered. The vertical organization of the school system is often described according to the number of grades included in each building or unit. It is abbreviated in formulas such as: 8-4, 6-6, 6-3-3, and others. The formula 8-4, which represents the oldest form of school organization, means that the elementary school includes the first eight grades and the secondary schools consist of the upper four grades. In like manner, a 6-3-3 formula would indicate that the elementary schools enroll pupils in the first six grades, the junior high schools enroll pupils in grades 7, 8, and 9, and the senior high schools enroll pupils in the upper three grades. Advantages and disadvantages can be given for each plan of organization. School reorganization committees should become familiar with the advantages and disadvantages of each plan and should select the one that is best adapted to their school and community.

The planner must know how the schools will be organized before he can know what grades will be housed in the plant and what kinds of facilities must be provided for the pupils.

He needs to know, in addition, the nature of the methods and tools of instruction which the teachers use, so that the size, shape, and built-in features of the classroom will be adapted to the future educational program.

The methods used in the instruction of children have an important bearing on the type of building facilities needed to meet the educational objectives. Traditionally, pupils sit in fixed seats and spend most of the day in reading and reciting academic subjects, with some additional training in music and art. This kind of program requires less floor space, and the usual furniture consists of fixed desks and chairs. A modern type of education recognizes the fact that pupils are active physically and also that they can learn better when they are given greater freedom and can participate in a wider group of educational experiences. This kind of program requires more classroom floor space per pupil, more movable furniture, and a greater number and kind of tools of instruction, such as a work bench, a drawing easel, and visual aids.

He must also determine whether any special facilities will be needed for such curricular and extracurricular offerings as crafts, music, art, health, guidance, and sports, or for the library, assembly, or cafeteria.

The relationship between the socio-economic life of the community and the nature and kind of curriculum offered in the school is important. The planner must know whether the community is largely, or in part, industrial, commercial, or professional, so that the building facilities can meet the needs of the pupils. If the community is populated largely by families working in industrial occupations, the schools should provide laboratories and shops in which pupils can receive training in occupations similar to those of their parents if they wish to do so. In like manner, if most of the pupils come from families of the upper economic levels or from homes of parents engaged in professional pursuits, the pupils are most likely to prepare for entrance into college, and facilities for courses in the academic areas should be available for such pupils.

Information needed concerning the occupations of parents and the industries located in the community can be secured by

conducting a house-to-house census. A form upon which the information can be recorded is in the appendix (see Exhibit A1). The information can be tabulated for inclusion in the survey report in tables similar to Tables 3.1, 3.2, and 3.3 below.

TABLE 3.1. PRINCIPAL INDUSTRIES IN _____ WHICH EMPLOY 25 OR MORE PERSONS*

Company	Product	Number of employees
A	Food containers	25- 50
B	Limestone	25- 50
C	Limestone	250-500
D	Coca-Cola	25- 50
E	Limestone	50-100
F	Limestone fabricators	50-100
G	Cut stone	25- 50
H	Limestone	25- 50
I	Lumber, building materials	25- 50
J	Limestone	25- 50
K	Limestone	100-250
L	Limestone	25- 50
M	Quarrying and cut limestone	50-100
N	Dairy products	50-100
O	Metal work	25- 50

*Information secured from the local Chamber of Commerce.

TABLE 3.2. INDUSTRIAL CLASSIFICATION OF PARENTS OF SCHOOL CHILDREN RESIDING IN _____*

Industrial classification	Fathers		Mothers	
	Number	Per cent	Number	Per cent
Manufacturing	323	13.8	206	9.1
Construction	191	8.2	2	.1
Transportation	177	7.6	2	.1
Trade	565	24.1	79	3.5
Finance	33	1.4	9	.4
Service	365	15.6	172	7.7
Government	520	22.2		
Agriculture	3	.1	6	.3
Retirement or unemployment	88	3.8		
Homemaking			1,726	76.5
No report	76	3.2	54	2.4
Total	2,341		2,256	

*Data obtained from a house-to-house survey by the Survey Committee.

TABLE 3.3. OCCUPATIONAL CLASSIFICATION OF PARENTS OF SCHOOL CHILDREN RESIDING IN _____*

Occupational classification	Fathers		Mothers	
	Number	Per cent	Number	Per cent
Businessmen or managers	419	18.5	54	2.2
Clerk sales workers	189	8.3	62	2.6
Farmers	3	.1		
Homemakers			1,671	69.4
Professional workers	473	20.9	71	2.9
Skilled laborers	745	32.5	196	8.1
Unskilled laborers	309	13.6	144	6.0
No report	129	6.1	209	8.7
Total	2,267		2,407	

*Data obtained from a house-to-house survey by the Survey Committee.

So that adequate school building facilities can be provided for the future it is necessary to study the population trends of the community. This information can be secured from the latest United States Census reports. If the community has lost a considerable population or has grown excessively since the last decennial enumeration was made, the school planner must take these factors into consideration in estimating the future population.

Table 3.4 is an example of a table in which the census information can be recorded.

TABLE 3.4. POPULATION GROWTH IN _____ FROM 1910 to 1950*

Year	Population	Increase over preceding decade	
		Number	Per cent
1920	11,595	2,575	31.2
1930	18,227	6,632	57.2
1940	20,870	2,643	14.5
1950	28,163	7,293	34.9

*Data obtained from the United States Census reports.

Other evidences of growth in the community can be secured from the local Chamber of Commerce, real estate board, or utility corporations, or from an analysis of the growth and stability of local industries.

If the school is to be used as a community center, the person planning the building must know the nature of the activities, the groups for whom they will be provided (youth or adults), and how they will be organized and directed. When this information has been secured, the school planner and the architect will know better how to provide for these needs.

The number of pupils to be assigned to each teacher in the elementary and secondary schools must be known. In order to find out the class loads which are assigned to teachers in the schools at present, a table such as Table 3.5 could be made for each building and a summary table could be compiled later for the whole school corporation. The information would naturally be secured from reports from the principal's or superintendent's office.

TABLE 3.5. ENROLLMENT IN _____ ELEMENTARY SCHOOL BY GRADES AND ROOMS

Room number	Enrollment by grades								Total enrollment
	Unc.*	K	1	2	3	4	5	6	
6		54							54
1			33						33
2			31						31
3			11	24					35
4				36					36
5				14	14				28
12					27				27
9					28				28
7					21	14			35
13						33			33
10						35			35
8							38		38
11							37		37
14								46	46
Total		54	75	74	90	82	75	46	496

*Unclassified.

The opportunities for reorganizing, for uniting with other school corporations in adjacent territory, or for extending the corporate limits of the school community in which the school operates should be considered in deciding what size the future school buildings should be.

Finally, the school planner needs to have information which will help him in determining where the new school

building should be located. He must know how to gather information which will disclose the direction of population growth. In a cooperative type of school building survey a group of parents can assist (a) in conducting a house-to-house canvas to gather this and other information on questionnaire forms similar to those in the appendix, (b) in tabulating the results, and (c) in preparing spot maps which show the location of new residences or the homes of the pupils. Maps of this kind will make the residential trends clear to the reader of the survey (see Figures 3.1 and 3.2). The pattern

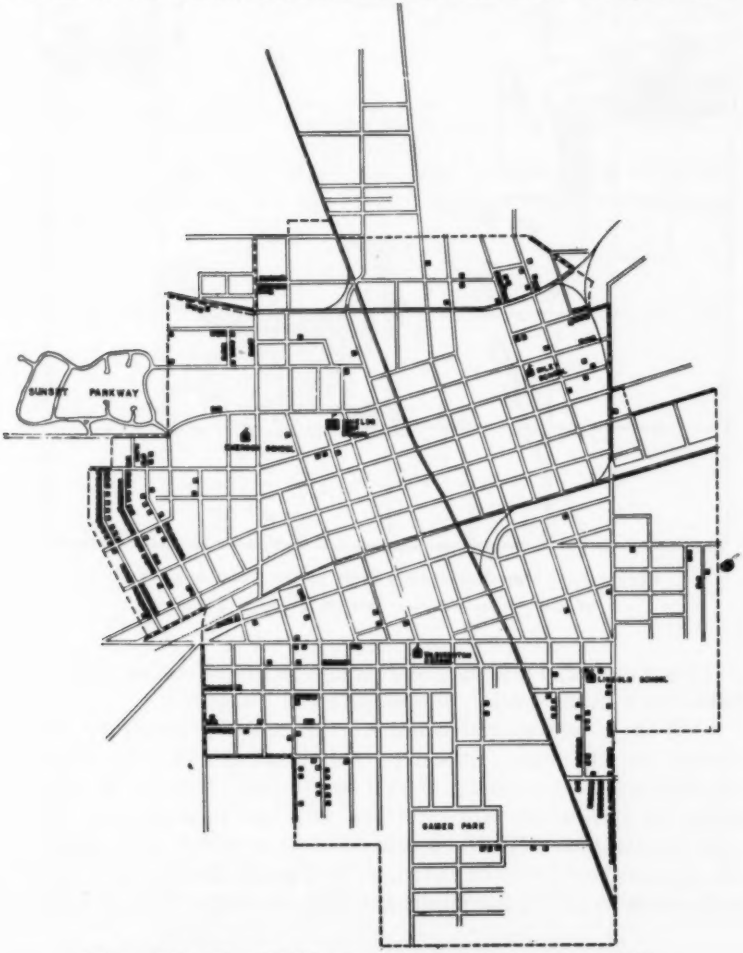

Figure 3.1. New Residences Built Within the City Limits of ———— Since 1940

of new residences or homes of pupils will be clearer if all unnecessary detail, such as plots of ground, alleys, etc., are removed. This information can be gathered on a blank similar to Exhibit A2 in the appendix. After the information

Figure 3.2. New Residences Built in the Suburban Area of ———— Township Since 1940

has been gathered and tabulated it can be prepared for presentation in a form similar to that given in Table 3.6.

If there are special areas of the school community reserved for business or industry, their location and their effect on future school planning should be studied. Natural or artificial barriers which will interfere with the expansion of the school district or with the transportation or which will hazard the pupils should also be noted, as well as the kind of facilities and routes available for pupils going to or coming from school.

TABLE 3.6. NEW RESIDENCES BUILT IN_____FROM 1945 THROUGH 1952*

Year	Number	Percentage of increase or decrease over the previous year
1945	12	
1946	15	25
1947	21	40
1948	26	24
1949	30	15
1950	35	17
1951	49	40
1952	62	27
Total	250	

*Data obtained from a house-to-house survey by the Survey Committee.

When all such information has been obtained and analyzed, the school planner and architect will know where to build new buildings.

CHAPTER 4

ESTIMATE OF FUTURE SCHOOL ENROLLMENT

The prediction of future school enrollment is an essential feature of a building survey. Plans for construction and location of new buildings and for expansion and improvement of present facilities must be made with consideration for the school population to be served. Several important variables enter into such predictions. Since the effect of some of these variables is relatively difficult to evaluate with a high degree of accuracy, predictions are always more or less subject to error. For this reason it is highly desirable that the data upon which predictions are based should be as accurate as possible. Ordinarily, the error of prediction increases with time. It is recommended, therefore, that trends be re-evaluated, preferably every year or two, in order to correct the predictions as the building program progresses. It is customary to project school enrollments for a 10-year period, which is about as far as one can predict with a reasonable degree of accuracy.

Although there are many methods for using data for prediction purposes, only those which have proved most successful in the recent surveys made by the Division of Research and Field Services will be described here. The problem of enrollment predictions differs greatly with various communities, and modifications in method must often be made to suit a particular situation. For those who find it necessary to modify the suggested methods described here, selected references which furnish information on other methods appear in the bibliography at the end of this publication (13, 26, 27, 45, 75).

Present School Population

A large proportion of those in school each year return the following year. The exceptions are those who graduate, those who drop out, and those who transfer. To take their place in the total enrollment, there will be an entering class of first graders and possibly some additions due to people moving into the community. If every community remained

static in population, and if every child of school age remained in school until graduation, the problem of predicting future enrollments would be relatively simple. The predictor would need only to determine how many will enter the first grade each year, adding these to the total in school the preceding year and subtracting the number who will be graduated. Other factors may also influence future enrollment. As an example, many school corporations accept paid-tuition transfers from other corporations; also, in many communities parochial schools provide for a number of pupils at lower grade levels, but these pupils later enter the public high schools. School policies with regard to retardation and acceleration have some effect upon enrollment; usually retardation has more effect than acceleration.

Holding power. Holding power may be defined as the percentage of resident pupils who remain in school until graduation. Withdrawals are of two kinds, those who move from the community and those who quit school after reaching legal age. In most communities the latter type is the more important in affecting future enrollment. The heaviest dropout period occurs between the end of the eighth grade and the beginning of the eleventh grade. If all high schools kept accurate records of the number withdrawing at each grade level and their reasons for withdrawing, determination of holding power would be easy. Unfortunately, this specific information is rarely available. Thus it becomes necessary to determine holding power by computing from grade to grade the ratios between the number of resident pupils in a grade one year and the number in the next grade one year later. The ratios should be observed for at least a five-year period, and the average or median ratio should be computed as well as separate yearly ratios. Some allowance can thus be made for certain observable trends.

The ratios do not indicate the actual holding power because they are also affected by community growth as well as by retardation and acceleration. In general, however, the assumption is made that these ratios will be fairly constant for a given period of time. After the likely number of school entrants is determined for each year of the prediction period (which will be explained later), the ratios are applied to these figures and to the basic grade by grade enrollment figures

for the present year in projecting the enrollments through future years.

Transfer students. Many school corporations accept tuition-paid transfer students from other corporations, especially at the upper high school level. If this is true where a prediction of future enrollment is to be made, it is necessary to include an estimate of future transfer pupils along with the estimate of resident pupils. This estimate of transfer pupils sometimes presents a difficult problem, especially if the school census (which will be discussed later) has not been extended to the areas from which transfer pupils come. At the present time, all typically rural areas except those immediately around large cities are either just holding their own in population or are showing slight declines. For the most part, then, there is only slight error involved if the number of future transfer students is estimated to approximate the number now being accepted. However, if there is any possibility within the prediction period that transfers will be accepted from new areas, this must also be taken into consideration. In establishing the holding power, as exemplified in the grade-to-grade ratio previously discussed, the number of transfer pupils should be subtracted from the total number of pupils at each grade level in order to establish a net resident pupil enrollment.

Retardation and acceleration. Retardation has the effect of stacking up enrollments at various grade levels. This is often noticeable at the first grade and at about the fourth grade. Unless the per cent of retardation is very high, the total effect upon school enrollment will not be too important. If the policies with regard to retardation and acceleration are likely to remain invariant over the prediction period, the grade-to-grade ratios will be ample to allow for such effects except at the first grade level. In most school systems there is much more retardation than acceleration.

Pupils from parochial schools. In many communities parochial elementary schools have been established from which pupils graduate and then attend public high schools. This presents some difficulty for predicting future enrollment since it makes necessary the gathering of enrollment and preschool census information from the parochial schools. In taking the

census, parents of young children are always asked whether these children will go to public, private, or parochial schools. The enrollment figures are easily obtainable for those now enrolled in parochial schools. The survey staff of the School of Education at Indiana University has experienced unusually fine cooperation from parochial schools in the communities where surveys have been made.

It should be pointed out that the grade-to-grade ratios will be seriously affected at the point where students who have attended parochial schools enter the public schools. However, if the practice of admitting parochial pupils to the public schools has been in existence during the period covered by the ratios, these ratios will reflect the public school growth caused by the entrance of parochial pupils at a given grade level. The trends of parochial enrollment must be known when making a prediction, in order to determine whether the ratios should be modified in the future to take care of these students as they enter the high school.

The School Census and the Preschool Population

Of equal or even more importance than accurate data on school enrollments is the need for accurate data on the number of children of preschool age now residing in the community. One method of securing these data is that of the school census. In a school census, in addition to securing information regarding number, residence location, and age of each preschool child, the census takers can secure other types of information, especially with regard to various socio-economic factors in the community. The census should be a cooperative affair between the community and the outside survey staff, and the procedures for carrying it out should be carefully worked out in advance. One such plan is discussed in detail below.

Holding the preliminary planning conference with the local school officials. The purpose of the planning conference is to divide the census area into districts which can conveniently be worked, to delegate the responsibility for polling those districts, and then to prepare a time schedule for the entire census study.

Initially, the school officials furnish the survey staff with a map of the community. This map is then redrawn to show

only the essentials necessary for the survey, and is reproduced by a duplicating process to furnish a number of copies for further use.

In dividing the census map into operational districts, the school officials should first divide it into different school districts and then into the individual subdistricts that will be canvassed by the census takers.

It has been found that elementary school attendance areas, whether city or township, afford a very satisfactory division. In most instances these districts will be approximately the same size and not too large to be administered by one supervisor. Regardless of the size of the community, therefore, the principal divisions of the census area will always be about equal in size.

The division of the elementary school district into the smaller individual subdistricts depends upon the density of population. It has been found that an individual census worker can efficiently canvas 30 residences in a reasonable time. Therefore, the subdistricts in populous areas should approximate two to four city blocks. In rural districts the area will be larger in size but not in number of personal calls.

The principals of elementary school districts have proved to be the most satisfactory district supervisors. They are usually more familiar with their school districts than anyone else. They know the children and many of the parents and are usually in harmonious working relationship with the Parent Teacher Association, which may be called on for assistance.

The time schedule for the census study should provide sufficient time for the preparation of all census materials and the selection of workers. Following this, definite dates should be set up for (a) briefing the census workers, (b) taking the census, (c) tabulating the census data, and (d) preparing the rough spot maps.

Preparing material and selecting workers. Individual census folders should be prepared for each worker. These folders usually contain a set of instructions and forms for the Census Record of Residences and the Family Census Record. (See Exhibit A2 and A3 in the appendix.) In addition, it has been found quite helpful to have the census area map cut

into subdistrict areas and the part showing the area covered by each worker pasted on the outside of his folder.

The way in which workers are selected to gather the census data in a cooperative school survey is a matter of preference. For a survey within a city system, the students from the upper classes of the high school can conduct a very satisfactory census if adequately supervised. Such a procedure can be considered a learning experience for the students and at the same time can create good public relations between the school and the community. Another method is to have the joint P.T.A. Council assume responsibility for the census study as a project, with each individual school P.T.A. responsible for its respective district. A third method is to call for interested citizens to assist in the collection of data. For township or rural areas the same methods may be used; however, when students are used it will be necessary for the school patrons to furnish transportation.

Briefing the census workers. The date set for briefing the census workers should be the day immediately preceding the gathering of census data. In the case of high school students, any convenient period during the day could be used. For the P.T.A. either afternoon or evening would be satisfactory. Personnel should not be permitted to take part in the census study if they were not in the briefing session, as it is absolutely essential to maintain uniformity of operations.

Taking the census. Once started, the census should continue according to instructions and without interruption until its completion. As a cross check for accuracy, the coordinator should have obtained a class roll for each grade throughout the school system. As the folders are turned in, the names of the in-school children on the census blanks should be checked with the names of the actual class rolls. The census will be considered complete when names of all children now in school have been accounted for.

Tabulating the census data. After all of the census folders have been completed and the coordinator is reasonably assured that every child in the community has been accounted for, the census data should be tabulated. Two of the ways in which group tabulation may be done are: (a) by the individual census workers who tabulated their particular folders;

and (b) by group tabulation, in which an assembly line is set up and each individual tabulates only one item as the census blanks are passed from one to the next. In the first method, a set of explanatory instructions is provided each worker. In the second, only a single briefing session with one illustration is needed to instruct the group.

Figure 4.1. Residences of Preschool Children Living in _____ Township

In making school surveys, the School of Education at Indiana University uses the following tabulation sheets: (1) Place of Birth; (2) Number of Years Family Has Lived in Local School District; (3) Industrial Classifications of Fathers and Mothers; (4) Occupations of Fathers and Mothers; (5) Public School Pupils on Basis of Grade and Year of Birth; (6) Parochial School Pupils on Basis of Grade and Year of Birth; (7) Census Report of Preschool and In-school Children;

(8) Census Report of Preschool and In-School Children; Parochial School Children Only; (9) Age of Residence, and, when the occasion warrants; (10) Community Center Census Report. Examples of some of these forms are included in the appendix. (See Exhibits A4 to A7.)

Figure 4.2. Residences of Pupils in Grades 1 Through 6 Living in ———— Township

Preparation of rough spot maps. When the tabulations have been completed, the final step of the census study is to prepare rough spot maps which will pictorially represent the approximate residence location of each preschool child, of each in-school pupil, and of new residences in the community. Separate spot maps should be made for preschool, elementary, and high school pupil residences. The present school organization determines the range of grades to be included in the elementary and high school maps. (See Figures 4.1 and 4.2

for examples.) Locations are determined from the original census folder, with each spot representing one individual.

Using the census data. The data from the school census may be used to help determine the number of pupils who are likely to be entering school in each of the following six years. If the predictions are to cover a 10-year period, it will be necessary to estimate the number of births likely to occur in the next four-year period. Ordinarily the survey staff bases this estimate upon the number of children by year of birth for the last five years, as shown in the census figures. However, if the census figures themselves indicate certain definite upward or downward trends, the number of predicted births may be modified accordingly. Also, if the data on community growth and school growth indicate the continuance of a prospective yearly growth in the community, the number of likely entrants to the first grade each year should be modified in terms of this growth factor.

Community Growth

The estimate of the degree to which a community is growing or declining in population usually can be made satisfactorily from the United States census reports. These reports may be supplemented by other available estimates. It should be remembered, however, that estimates made by community organizations are much more subject to error and personal bias than are official census reports. Information with regard to possible factors which will affect growth should also be taken into consideration.

The growth in school population does not always parallel community growth. In many fast growing communities, for example, where an in-migration of young families has taken place, school growth has not kept up with population growth, but later, as the children of these young families become of school age, it may be accelerated beyond what will then be the rate of population growth. Ordinarily the grade-to-grade ratios mentioned in the section above in the discussion of preschool population will suffice to take care of the growth factor in the community as it affects the present enrollment within the public schools. Some adjustment should be made in the preschool tabulations where the growth factor is sizable. As an example, if the population increase is about 2

per cent per year, for every 100 children of one year of age at the time of the census there will be about 110 entering school five to six years later.

An evaluation of trends in industrial development within the community is likewise an important factor in making estimates of future enrollment. There is at present a general trend toward decentralization of industry, and this is resulting in increased industrial development in the comparatively less populated areas near large urban centers. If the community being studied is likely to experience such growth, due allowance should be made in the estimates. Probably the best procedure for evaluating this factor is to allow for such growth only on a minimum basis, and then to plan new buildings so that they may be expanded to meet emergency needs.

Fluctuations in the economic status of a community have some influence on school enrollments. For example, a period of depression may lead to increased high school enrollment because of the lack of jobs for those who might withdraw from school before graduation. On the other hand, if a community has been experiencing rather heavy in-migration due to accelerated industrial development, a sudden depression might lead to a rather marked withdrawal of families from the community, thus lowering the school population. To predict changes in economic patterns is such a difficult task that it is usually unwise to make allowance for such possibilities in estimating future enrollments.

Construction of the Prediction Table

With due consideration for the effect of the variables already discussed an attempt will be made to outline the specific procedures for estimating future enrollment, step by step, and to include illustrative examples.

Step 1—Taking the school census. The census should precede by at least a month the actual prediction of future enrollment in order to allow plenty of time for tabulating the data. Part of the census data is used to describe the general background of the community. The part used in prediction consists mainly of a tabulation of the number of preschool children by year of birth. The enrollment figures of the number of children actually in school is used to check the accuracy of the census. It may reasonably be assumed

that, if a census tabulation shows little error in disclosing the names and residence locations of those who are now in school, it will likewise show little error in the enumeration of those of preschool age.

Step 2—Estimating the number who will enter first grade each year. Estimating the number who will enter the first grade each year is primarily a problem of tabulating the number of children residing in the community who were born within six years previously. If the entrance age policy allows those to enter in September who will be six years of age by January of the succeeding year, the tabulation is a comparatively simple task; if not, due allowance must be made for such variation in date. Where no growth in the community is expected, the actual census figures may be used to estimate the number entering first grade each year. Where there is a growth factor, the tabulations by birth for each year must be increased by this factor, weighted for each year the birth dates are removed from the year of entrance.

In computing the effect of in-migration and growth, care should be taken to multiply the number of births each year by the correct proportion of the total percentage of growth. For example, assuming that those born in 1952 will enter school at age 6, they will be entering first grade in September, 1958. If it is assumed further that the community is growing at the rate of about 1 per cent per year, these 1952 census tabulations should be multiplied by 1.06, which allows for a 1 per cent growth in each of the six years following the collection of census data. The effect of infant mortality rates upon the number tabulated in the census has not been considered here because the greatest proportion of such infant mortality takes place at, or very shortly after, birth and has an important effect only on the census figures for those born very near the time the census was taken.

Table 4.1 illustrates how the tabulations from the census are used in determining the expected first grade entrants. If there is a noticeable retardation from first to second grade, as evidenced in the grade-to-grade ratio, the estimated number of entrants must be increased to account for those who will be held back each year. It should be noted that the last column of this table includes an assumed increase due to growth in the community. If no increase had been assumed, this column

would not have been necessary. In order to project future enrollment estimates through a 10-year period it is necessary to estimate the number of births per year for a four-year period beyond the date of census. The usual practice is to assume that the number of births per year in future years will approximate the average number for the past five years unless there are definite trends upward or downward, in which case this practice may be modified.

Step 3—Determining previous enrollment. In order to draw some conclusions with regard to how population growth has coincided with public school enrollment growth, a table of such enrollments should be constructed covering about a 10-year period. At the present time it is probably safer only to utilize data obtained over the past five-year period, since enrollments in a large number of communities were subject to a number of variables during World War II which do not ordinarily operate constantly.

Table 4.2 shows an example of a past enrollment tabulation. Ordinarily the enrollment for each separate grade from grade 1 to grade 12 is shown in this table. (The community represented in Table 4.2 was sending its high school pupils to another corporation, and enrollment figures were not available for grades 9 to 12 separately.) Whether the totals should be set up for grades 1 to 6, 1 to 8, 7 to 12, 9 to 12, or some other combination of grades will usually depend upon the way in which these grades are organized in the local schools at the time. Various percentages of increase or decrease in enrollment may be computed from this table and compared directly to known changes in the general population figures over the same period of time. In this way, an evaluation can be made of the extent to which changes in the general population of the community are reflected in, or correlated with, changes in school enrollment. These observations can help form the basis for estimating the rate of change in school enrollments which might reasonably be expected to result from future growth factors in the community as a whole.

The grade-to-grade ratios of enrollment which will be used later in future estimates may also be obtained from a table set up like Table 4.2. The last five-year period usually suffices for this purpose. According to Table 4.2, there were 275 children enrolled in the school year 1950-1951. The following year (1951-1952) there were 287 second graders. This in

itself is indicative of some increase due to growth in the general population. To get the ratio between grades 1 and 2 over the last five-year period, the following pairs of figures would be used: 275-287, 298-286, 252-227, 234-226, and 212-196. The five left-hand numbers in these pairs should be summed and the five right-hand numbers should be summed. The right-hand sum should be divided by the left-hand sum to get the ratio of second graders to first graders. This same procedure should be followed for each of the other pairs of grades. By using the five-year period, certain deviations from the usual trend in any particular year would be averaged out.

If the enrollment figures for the schools are complicated by transfers, the past enrollment table should be set up on a resident pupil basis. Sometimes school records are not adequate for use in arriving at a valid resident pupil tabulation. In this case the establishment of ratios is difficult, and it may have to be assumed in the first eight grades that all pupils will progress uniformly from grade to grade. It will also be necessary to assume an expected drop-out ratio in the upper five grades.

Step 4—Constructing maps showing pupil residences. Ordinarily three spot maps are constructed showing the residence location of all children tabulated in the census. The first of these maps deals with children of preschool age, the second deals with children of elementary school age, and the third with children of high school age. A dot is used to indicate the residence location of each child. Locations are determined from the original census folder with each spot representing one individual. The number of classes to be included in the elementary and high school maps is ordinarily dictated by the present school organization; that is, in a so-called 8-4 system, the elementary school maps would include grades 1 to 8, and the high school map would include grades 9 to 12. These maps do not furnish information for predictive purposes, but they do illustrate graphically the comparisons in growing communities between the numbers now in school and those which may be expected to be in school within a six-year period. The maps also present a very good evaluation of the degree to which present buildings are favorably located with regard to the school populations they serve or will serve, and give valu-

able information for locating new structures. (See Tables 4.1, 4.2, and 4.3.)

TABLE 4.1. YEAR OF BIRTH AND NUMBER OF CHILDREN NOW RESIDING IN_____TOWNSHIP WHO WILL ENTER SCHOOL IN EACH OF THE NEXT 10 YEARS

Year of birth	Number	Year of entrance	Estimated number entering school
1947	339	1953	358†
1948	345	1954	384
1949	339	1955	396
1950	317	1956	383
1951	274	1957	351
1952	236	1958	343
1953	260*	1959	362
1954	260*	1960	376
1955	260*	1961	391
1956	260*	1962	406

*Estimated number of births.

† In this case the growth factor was approximately 5.6 per cent per year.

Step 5—Making the prediction table. In predicting enrollment for a 10-year period, the years are listed in a vertical column with the present school year, for which enrollments are known, given first and the last year of prediction given last. To the right of this column of years, there will be one column devoted to each of the 12 grade levels. The present enrollment figures are placed in the horizontal row opposite the present school year. In the vertical column devoted to grade 1 are placed the predicted first grade enrollments for each of the 10 years. Table 4.3 illustrates how this original table should be set up. The ratios which are to be used as multipliers also appear in this table. It should be mentioned again that the actual enrollment figures should be those pertaining only to the resident enrollment within the corporation being studied. For illustrative purposes only, the present first and second grade enrollments have been projected in Table 4.3 in italics.

Step 6—Constructing the summary table of estimated enrollments. Table 4.3 serves as a working table and may or may not appear in the printed report. A summary table such as that illustrated in Table 4.4. usually suffices for projecting

TABLE 4.2. PUBLIC SCHOOL ENROLLMENT IN_____TOWNSHIP FROM 1942 THROUGH 1952*

School year	Enrollment								Total enrollment		
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grades 1-8	Grades 9-12†	Grades 1-12†
1942-1943	196	166	153	148	130	138	149	125	1,205	343	1,548
1943-1944	212	189	163	158	151	138	130	129	1,270	275	1,545
1944-1945	226	182	178	149	128	133	144	121	1,251	360	1,621
1945-1946	221	202	173	157	159	142	138	109	1,301	404	1,705
1946-1947	212	206	198	177	163	154	146	124	1,380	393	1,773
1947-1948	234	196	193	186	173	147	163	141	1,433	413	1,846
1948-1949	252	226	194	186	184	171	152	156	1,521	452	1,973
1949-1950	298	227	227	204	207	185	168	150	1,666	473	2,139
1950-1951	275	286	242	233	213	203	188	162	1,802	491	2,293
1951-1952	343	287	287	264	251	198	205	188	2,023	521	2,544

* Data taken from official records.
† Includes high school transfer students.

TABLE 4.3. ESTIMATED PUBLIC SCHOOL ENROLLMENT IN EACH GRADE IN_____TOWNSHIP FROM 1952 THROUGH 1963

School year	Enrollment											
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
1952-1953*	*304*	*336*	*291*	*310*	*260*	*250*	*222*	*203*	*174*	*140*	*102*	*84*
1953-1954	*358*	*295*	*343*	306	322	255	256	218	199	162	123	89
1954-1955	*384*	*347*	*301*	*360*	318	316	263	251	214	185	143	107
1955-1956	*396*	*372*	*354*	*316*	*374*	312	325	258	246	199	163	124
1956-1957	*383*	*384*	*379*	372	*329*	*367*	321	319	253	229	175	142
1957-1958	*351*	*372*	*392*	398	387	*322*	*378*	315	313	235	202	152
1958-1959	*343*	*340*	*379*	412	414	379	*332*	*370*	309	291	207	176
1959-1960	*362*	*333*	*347*	398	428	406	390	*325*	*363*	287	256	180
1960-1961	*376*	*351*	*340*	364	414	419	418	382	*319*	*338*	253	223
1961-1962	*391*	*365*	*358*	357	379	406	432	410	374	*297*	*297*	220
1962-1963	*406*	*379*	*372*	376	371	371	418	423	402	348	*261*	*258*
Ratio	.97	1.02	1.05	1.04	.98	1.03	.98	.98	.93	.88	.87	

* Actual enrollment.

TABLE 4.4. ESTIMATED PUBLIC SCHOOL ENROLLMENT IN CERTAIN GRADE GROUPS IN_____TOWNSHIP FROM 1952 THROUGH 1963

Year	Estimated enrollment				
	Grades 1-6	Grades 7-8	Grades 1-8	Grades 9-12†	Grades 1-12†
1952-1953*	1,751*	425*	2,176*	500	2,676
1953-1954	1,876	477	2,353	602	2,955
1954-1955	2,021	518	2,539	649	3,188
1955-1956	2,118	585	2,703	714	3,417
1956-1957	2,206	642	2,848	793	3,641
1957-1958	2,214	691	2,905	893	3,798
1958-1959	2,260	698	2,958	975	3,933
1959-1960	2,267	713	2,980	1,074	4,054
1960-1961	2,255	800	3,055	1,128	4,183
1961-1962	2,246	841	3,087	1,182	4,269
1962-1963	2,267	839	3,106	1,261	4,367
Increase	516	414	930	761	1,691‡

* Data taken from Form 35a in County Superintendent's Office, _____ County, Indiana.
† Includes high school transfer students.
‡ This is an increase of 63 per cent.

future needs on the basis of expected enrollments. The numbers in such a table are obtained by adding the numbers for the various grades in the horizontal rows of Table 4.3. The patterns of grades in this summary table should, of course, follow the pattern which is in effect in the present school organization. If there is any chance that the organization of grades will be changed, this new pattern should be anticipated and included in the summary table. If the estimates have been made on a resident pupil basis, these must be revised to include an estimate of the number of students expected to transfer in or out of the schools.

Step 7—Making minimum and maximum estimates. The procedure in making estimates listed in Steps 4 and 5 above apply to the most likely, or probable, estimates of future enrollments. Ordinarily this suffices for the purpose for which such estimates are to be used. This is especially true provided the building program is to be one of long range, as corrections can be made in the estimates later, before the building program is completed. In some cases, however, it might be desirable to make two other kinds of estimates, one a minimum and the other a maximum. It is ordinarily assumed that population estimates, carefully made, will not show actual enrollment deviations of more than 10 per cent even after a 10-year period. In establishing minimum and maximum estimates, the factors which will affect future enrollments may be re-examined. The minimum influence of these factors may be determined in establishing minimum estimates and the maximum influence may be used in establishing maximum estimates. In setting up estimates on these three bases it is necessary to go through Steps 4 and 5 for both types of estimates.

Summary

The estimating of future enrollments for at least 10 years is a necessary feature of a school building survey. Plans for construction are based primarily on such estimates. Since many variables affect school enrollments, the process of prediction is an individualized procedure for each separate community. An attempt has been made to show how such variables may affect future enrollments.

Enrollment predictions are always subject to error. It is recommended, therefore, that they be re-evaluated at frequent

intervals, as the building program progresses. The procedure of keeping the school census up to date is the most important element in such re-evaluation.

Detailed steps in making the estimates have been outlined. These include suggestions for gathering the necessary information, tabulating this information, and using it in making the estimates.

CHAPTER 5

SCHOOL PLANT PLANNING

In a comprehensive survey an educational philosophy is developed which determines the type of school program to be planned. This philosophy results from a thorough study of the religious, social, cultural, economic, vocational, avocational, and recreational needs and desires of the community. In turn, the resulting school program conditions the type of organization, the kind of school buildings, and the location, size, and space composition and relationship of the buildings. The K6-6, K6-3-3, or 8-4 plan of organization or modifications of these may be used. Certainly no buildings should be planned without knowledge of the type of organization. The type and extent of community use, the ratio of academic to vocational needs, the future of the part-time programs, the health, recreational, and cultural needs, as well as the ultimate capacity, the methods of transportation, and the necessary auxiliary services must be anticipated.

A school building survey concentrates upon the building needs and financial ability of a community. Since the mass information usually obtained through a comprehensive survey is not available in a building survey, certain basic assumptions and decisions, usually based upon experience in similar communities, must be made. For instance, in a prosperous agricultural area the teaching of vocational agriculture is probably needed in the school, whereas in a commercial and industrial area commercial and industrial subjects may be desirable. The availability of sites may influence the size and type of school. Before very much can be done, at least tentative policies must be set up in regard to the following:

1. Type of organization (8-4, K6-3-3, K6-6, etc.)
2. Minimum and maximum size of each type school
3. Maximum distance to be traveled by the pupils
4. School transportation.
5. Provisions for handicapped children
6. Special courses
7. Community use
8. Lunch programs
9. Health services

Evaluation of Present Facilities

Many instruments are used in the evaluation of school facilities. Prabably the two best known are the Strayer-Engelhardt and the Holy-Arnold score cards. These score cards use 1,000 points to represent the ideal school. The former score card was developed at Columbia University and the latter at Ohio State University. A rating form for elementary school plants was developed at Columbia University by Linn and McCormick. Linn also developed an excellent school building and analysis sheet which is used in surveys made by Teachers College, Columbia University. For group evaluation or community participation, the New York State Department of Education has some excellent materials. One of the best books on this subject is *How to Conduct a Citizens School Survey,* by Merle R. Sumption.* Most evaluation or scoring instruments need to be adapted to the local situation. For instance, the score card will include a cafeteria in the ideal score, whereas in some situations a cafeteria may not be desired. Thus an adjustment factor will be needed to adapt the instrument to local needs. The important thing is to use an up-to-date set of criteria or standards with the scoring instrument. The person or persons doing the rating should have a good educational background, with considerable knowledge about modern school buildings. Much of this can be obtained through a thorough study of the references listed at the end of this bulletin.

Some scoring instruments, such as the Holy-Arnold Score Card, have five rating columns headed by the letters A, B, C, D, and E. A very simple method of scoring is to use the middle, or C, column as average and rate up or down from this average. Thus the ratings of good and excellent are above average and those of poor, very poor or lacking are below average. For publicity or public presentations, summary tables may be made as illustrated in Tables 5.1 or 5.2.

Ratings of 800 or more points indicate buildings that are very good in general, but which perhaps need some repairs, modernization, or rehabilitation. Ratings between 400 and 800 may indicate the need of rather extensive repairs, modernization, or rehabilitation, while ratings under 400 indicate that

* See also references 64 to 66 in the bibliography. Also, a 100-frame filmstrip in color, entitled *Cooperative School Plant Planning,* may be obtained from the Audio-Visual Center, Indiana University, Bloomington.

TABLE 5.1. RATINGS OF_____CITY HIGH SCHOOL BUILDINGS AND SITES ACCORDING TO THE HOLY-ARNOLD SCORE CARD

School	Site	Building	Academic class-rooms	Special class-rooms	General service rooms	Adminis-tration rooms	Service systems	Total
A	54	61	60	61	53	22	50	361
B	60	75	95	100	85	60	90	565
C	75	100	125	150	130	85	125	790
Ideal school	120	158	167	171	153	92	139	1,000

TABLE 5.2. RATINGS OF_____CITY ELEMENTARY SCHOOL BUILDINGS AND SITES ACCORDING TO THE HOLY-ARNOLD SCORE CARD

School	Site	Building	Classrooms	Service rooms	Service system	Total
A	52	42	89	40	41	264
B	100	130	202	113	101	646
C	97	132	208	109	102	648
D	78	110	163	97	71	519
Ideal school	136	178	297	250	139	1,000

careful thought is needed before further expenditures should be made on the structure. Mere numerical totals mean little beyond this. Only an analysis of the scoring will give any real appreciation of the actual condition of the plant. The scoring should always be supplemented with a summary statement on each building, as illustrated below.

"Hunting Elementary School is a two-story building of limestone with wood interior, constructed in 1931 in the southwestern part of town at a cost of $140,000. The rectangular site contains three acres. This is considerably less than the eight acres recommended as a minimum for an elementary school of this size.

"Grades 1 through 6 occupy this building. The condition of the building is fair to good, as indicated by a score of 648 points on the Holy-Arnold Score Card (see Table 5.2). The foundations, walls, and roof seem well constructed. The inside stairways are fire resistive, the steps being of terrazzo. The six-foot corridor dado is of yellow glazed brick, the ceiling and upper walls are plaster painted white and the floors are terrazzo. The corridors are in good condition. Display cabinets are located in the corridor of the first floor. Metal lockers are located in the corridors on both floors.

"The classroom floors are of light brown linoleum. The plaster on the walls and ceilings is good, with some exceptions. Lighting is provided by glass diffusing globe fixtures which provide varying intensities from 10 to 15 footcandles near the inner walls of most rooms. Adequate bulletin boards are provided. Chalkboards are of black slate. The furniture is movable and medium dark in color. There is evidence that much effort has been expended in improving the surroundings in many rooms. Many of the teachers have used considerable taste in providing colorful accessories for their rooms. The administration and staff should be commended for these efforts.

"This building lacks a library, a kindergarten, and elementary homemaking and shop areas. Instead of a cafeteria, the gymnasium is equipped with folding tables and is used for a dining room. The kitchen is built at the south end of the gymnasium-auditorium and is well equipped. The gymnasium is lighted with eight industrial-type reflector fixtures with wire protectors. Glazed brick protect the side walls up to 10 feet from the floor. The stage is at the north end of the room. This multipurpose room does not serve any of its

functions well. This is true of most combination gymnasium-auditoriums.

"Toilet rooms for each sex are located on each floor. The boys' toilets have terrazzo floors, structural brick walls, and an adequate number of waterclosets, urinals, and mirrors. Ventilation is poor in all toilet rooms. The girls' toilet rooms also have terrazzo floors, structural brick walls, stall water closets, and mirrors.

"Although most of the classrooms are of average size, some rooms are rather small and crowded."

Further insight into the adequacy of the building for size can be obtained through a utilization study.

The amount of floor space recommended per pupil is 25 square feet in regular classrooms and from 15 to 75 square feet in special classrooms, depending upon the activity taking place in the room. Table 5.3 shows the utilization of an elementary school.

TABLE 5.3. ROOM SIZE, CAPACITY, AND ENROLLMENT AT _____ ELEMENTARY SCHOOL, SEPTEMBER, 1951

Room number	Area in square feet	Capacity at 30 sq. ft. per pupil	Number of pupils enrolled
233	900	60*	64*
235	700	23	29
237	700	23	33
251	700	23	31
253	700	23	26
227	760	25	26
225	460	15	17
331	460	15	25
337	660	22	32
339	700	23	35
351	740	25	23
353	850	28	27
Total		305	368

*These are kindergarten pupils who attend half days only.

Table 5.3 shows that 10 of the 12 rooms were overcrowded at the time of the survey. Besides this, the building was overcrowded by at least 20 per cent; even more, if a 75-per cent utilization factor were considered the optimum.

There are three main types of utilization of high school space: room utilization, pupil station utilization, and space utilization in regular and special classrooms. Data concerning room utilization of regular classrooms are given in Table 5.4, while data concerning pupil station utilization are given

TABLE 5.4. UTILIZATION OF REGULAR CLASSROOMS IN _____ TOWNSHIP HIGH SCHOOL, SEPTEMBER, 1951

Room number	Number of periods used	Total number of periods	Per cent of utilization
121	6	7	86
202	5	7	71
204	6	7	86
209	4	7	57
302	7	7	100
304	6	7	86
305	6	7	86
323	7	7	100
327	7	7	100
329	6	7	86
333	6	7	86
Total	66	77	86

in Table 5.5. Space utilization of special classrooms is given in Table 5.6. In the survey, all three types of information should be given for every classroom.

According to *American School Buildings* (52:60), "in high schools of 300 enrollment or more, a room use (utilization) of 85 per cent for academic rooms seems to be an attainable goal—and 71 per cent for special rooms. . . . Pupil-station use of 70 per cent (for academic rooms) and 55 per cent (for special rooms) was found attainable. . . . Acceptable standards for elementary schools are 90 per cent for room use and 75 per cent for pupil-station use." The aforementioned utilization are listed only as attainable and must be applied with common sense to every situation. Frequently a study of utilization tables for the high school will lead to program changes, and even room changes, which may result in saving space the equivalent of adding several classrooms to the building.

The evaluation of any school plant must take into consideration the reasonable adaptability of the plant to the

TABLE 5.5. NUMBER OF PUPIL STATIONS AND PERCENTAGE OF THEIR UTILIZATION IN SPECIAL CLASSROOMS IN _____ TOWNSHIP HIGH SCHOOL, SEPTEMBER, 1951

Room number	Purpose	Total seats or pupil stations	Number of pupil stations occupied during each period							Total daily occupancy	Total possible daily occupancy	Per cent of pupil station utilization
			1	2	3	4	5	6	7			
101	Shop, mechanical drawing	19	18	12	10	19	17	10	13	99	133	74
123	Foods laboratory	20						18*		18	140	12
125	Sewing laboratory	28	18	18	16	18	19	12	16	117	196	59
127	Ariculture	26	18	26		14	16	18	12	104	182	57
132	Band	65	24	10	10	10	67	†	†	121	455	26
151	Biology	32		23	22	20		28	14	107	224	47
203	Music	60	22	27	28	29	48	41	†	195	420	46
205	Art	31	7	22	12	24	24		11	100	217	46
221	Bookkeeping	30	12	20	30	25		18	12	117	210	55
223	Typing and shorthand	20	20	20	12	14		18		84	140	60
335	Chemistry and physics	24	13	12	15			13	12	65	168	38
Total		355	152	190	155	173	191	176	90	1,127	2,485	45

* Used for laboratory work other periods.
† Used for practice.

TABLE 5.6. RECOMMENDED AND ACTUAL NUMBER OF SQUARE FEET PER PUPIL STATION IN SPECIAL CLASSROOMS IN ——— TOWNSHIP HIGH SCHOOL, SEPTEMBER, 1951

Room number	Purpose	Area in square feet	Square feet per pupil station	
			Recommended	Actual
101	Shop, mechanical drawing	1,760	75	92
123	Foods laboratory	920	50	46
125	Sewing laboratory	720	50	26
127	Agriculture	520		20
132	Band	960	25	15
151	Biology	1,000	25	31
203	Music	900	15	15
205	Art	900	25	29
221	Bookkeeping	760	25	25
223	Typing and shorthand	460	20	23
335	Chemistry and physics	800	35	33

emerging school program. Scoring instruments show only symptoms of curricular and structural obsolence or inadequacy. They do, however, lead to an orderly and careful checking of important details which need to be summarized for final analysis. Further light is obtained through the study of the use of the rooms and space.

Determination of Need

The plant needs of a school corporation can be determined only through a study of present facilities, pupil population growth, residential growth, and zoning restrictions. The total classroom deficits for the present or for any predicted year can be estimated, as indicated in Table 5.7.

This method may seem to give rather rough estimates; however, they have proved fairly satisfactory for building budgeting purposes. Special and auxiliary service areas are not considered in this estimate of rooms needed. Cost allowances are made for these when the location and sizes of the individual schools are determined. The school district illustrated in Table 5.7 had only elementary schools. The high school pupils were cared for by a neighboring district, but the surveyed district wished to build its own high school plant, The room deficits were accumulated in the total for ease of setting up a construction schedule.

TABLE 5.7. PREDICTED ENROLLMENT, ESTIMATED ROOM NEEDS, AND ROOM DEFICITS FROM THE PRESENT BASE OF 51 SCHOOLROOMS IN ———— TOWNSHIP, ON THE BASIS OF A 6-6-3 PLAN OF ORGANIZATION

Year	Predicted enrollment			Estimated room needs			Room deficits from present base of 51			Total
	Grades 1-6	Grades 7-9	Grades 10-12	Grades 1-6*	Grades 7-9†	Grades 10-12‡	Grades 1-6	Grades 7-9	Grades 10-12	
1952-1953 §	1,751	599	326	58	22	15	7	22	15	44
1953-1954	1,876	686	393	63	25	18	12	25	18	55
1954-1955	2,021	744	423	67	28	19	16	28	19	63
1955-1956	2,118	833	466	71	31	21	20	31	21	72
1956-1957	2,206	918	517	74	34	24	23	34	24	81
1957-1958	2,214	1,002	582	74	37	26	23	37	26	86
1958-1959	2,260	1,037	636	75	38	29	24	38	29	91
1959-1960	2,267	1,087	700	76	40	32	25	40	32	97
1960-1961	2,255	1,193	735	75	44	33	24	44	33	105
1961-1962	2,246	1,252	771	75	46	35	24	46	35	105
1962-1963	2,267	1,278	822	76	47	37	25	47	37	109

* 30 pupils per room.
† 27 pupils per room.
‡ 22 pupils per room.
§ Actual enrollment, from annual reports to the State Superintendent of Public Instruction, Form 35a, September of each year.

If a zoning map is available, and a census has been taken and spot maps made of new housing, preschool children, elementary pupils, and high school pupils, it is usually rather easy to determine where the new buildings should be constructed, especially when policies of travel, distance, and minimum size have been established. Usually it is good policy to build school buildings wherever there is a concentration of children large enough to warrant a building. An elementary school functions best if there is at least one room per grade. A good high school should have, at the least, 50 pupils per grade. Where extensive vocational and special courses are to be offered, an enrollment of at least 100 pupils per high school year is desirable. The pattern of new housing and subdivision development definitely influences the location of buildings. (See housing and census maps in Chapter 2.)

A survey group should never make public a recommended site until the school authorities have had time enough to get an option or have made other tentative arrangements for purchase. Sites have a way of increasing in price when it is known that they might be wanted for school purposes. Where possible, it is desirable to purchase five acres plus one additional acre for each 100 elementary children to be enrolled and 10 acres plus one additional acre for each 100 high school pupils. Careful consideration should be given to nuisance factors in the neighborhood, such as smoke, noise, dumps, quarries, chemical factories, and slaughter houses. The site should have good drainage and should be easily accessible to services such as water, sewer, electricity, and gas. It does not need to be flat for modern construction. Many of the best school sites today are uneven or rolling. When properly treated, they take on character. At this point it should be stated that plans for the site development should be made at the time the building is planned. Considerable money may thus be saved in dirt removal.

Setting Up the Construction Schedule

The construction schedule should be based on the estimated plant needs, and construction on each unit should be started at least two years before that unit is to be needed. The planning should not be delayed until overcrowding of present facilities takes place. In many situations the financial ability is so low in comparison to the needs that the building

schedule has to be modified in accordance with the ability. Following are two examples of proposed construction schedules (see the Construction Schedule and Table 5.8). These are rather self-explanatory.

CONSTRUCTION SCHEDULE

Date	Building	Number of rooms	Cost
1951	Build Southeast Elementary School to enroll pupils in grades 1 through 6 or 1 through 8	12	$ 360,000
	Build first unit of West Elementary School, which ultimately will contain 18 rooms to house pupils in grades 1 through 6 or 1 through 8. (Issue five-year bonds and use part of first installment of 1952 cumulative building fund.)	6	180,000
1953	Complete West Elementary School	12	328,000
1954	Build Northeast Elementary School. (Use $65,000 of 1955 cumulative building fund.)	12	360,000
1956	Build Northwest Elementary School, ultimately to include 12 rooms	6	180,000
	Build Junior High School (northeast, for grades 7 and 8 only)	23	660,000
	Total	71	$2,068,000

There are many ways of estimating the cost: by the cubage, square footage, pupil capacity, or classroom. These costs change from one section of the country to another, from one type of construction to another, and from one day to another. There is no way of being sure that long-term estimates will be correct when it comes time to construct the building, even though experienced school building consultants keep abreast of building costs, indices, and statistics and are able to make a well-considered guess on the costs, especially if they know the architects involved. Therefore, all predictions and estimates in a survey should be checked periodically and correction factors should be introduced to bring them up-to-date.

TABLE 5.8. PROPOSED SCHOOL BUILDING SCHEDULE FOR _____ TOWNSHIP, BASED ON FUNDS AVAILABLE FROM A CUMULATIVE BUILDING FUND AT 75 CENTS PER $100 OF ASSESSED VALUATION AND FROM A SINGLE FIVE-YEAR SERIAL BOND ISSUE

Date	Location	Number of rooms	Source of funds		Approximate cost of current year's building	Balance for future building	Cumulative costs to date
			Cumulative building fund	Bond levy			
1954	Roosevelt School	2	$ 70,000		$ 50,000	$20,000	$ 50,000
1955	New site south of Road 32 (southwest corner)	6	105,000	$88,000*	180,000	33,000	230,000
1956	Lindberg	4	105,000		120,000	18,000	350,000
1957	Forest Hill	4	105,000		120,000	3,000	470,000
1958	No construction planned		105,000			108,000	470,000
1959	Possible new site (southeast corner)	6	105,000		180,000	23,000	650,000
1960	To be determined by new survey	3	105,000		90,000	48,000	740,000
Total		25	$700,000	$88,000		$48,000	$740,000

*Five-year serial bond issue, due in 1960.

At the present time in Indiana $30,000 is used as the estimated cost per classroom. This also covers, as the base cost, the cost of the usual auxiliary rooms and a playroom or instructional gymnasium. This estimate must be modified according to the geographical location of the proposed building, the type of architecture, and whether or not the cost must include a heating plant, cafeteria, and gymnasium capable of serving a later expanded school. It is true that rooms planned only for classes can be built at much less than this estimated figure. It is also true that many outstanding schools cost much more. It is always dangerous to use an estimated figure unless you know what it means and to what it is to be applied.

A school building survey usually goes no further than proposing a schedule of rehabilitation, new construction, and finance. Each individual project requires extensive consultant services after the survey. The educational specifications for each new building should be developed, preferably cooperatively, and made available to the architect. These should include a proposed space allotment and a proposed building budget. The following are included here for illustrative purposes only.

PROPOSED SPACE ALLOTMENT FOR NEW ELEMENTARY SCHOOL BUILDING

Kindergarten	1,200	sq. ft.
Eight rooms	8,000	sq. ft.
Corridors	2,000	sq. ft.
Toilets, administration, and health	1,300	sq. ft.
Cafeteria, storage, and play	2,300+	sq. ft.
Heating, etc.	1,000+	sq. ft.
Allotment approximately 16,000 square feet	15,800	sq. ft.

PROPOSED SCHOOL BUILDING BUDGET

Site	$ 16,000
Site development	5,000
Building contracts	200,000
Legal services	1,500
Administration	1,000
Architect's fee	12,000
Furniture and equipment	18,000
Clerk of the works	5,000
Contingencies and other costs	10,000
	$268,000

The space allotment table for this small elementary school features rather large classrooms but allows for no waste space. Also, the building is to be constructed in a low cost area of Indiana, as the building contracts are estimated at $12 plus per square foot instead of the usual $15 to $16 per square foot. The type of construction also influences this low cost estimate. However, if $30,000 is allowed per classroom, the total project estimate of $270,000 is not far from the proposed building budget of $268,000. The building consultant has many ways of checking all of his estimates on costs and space allotments against national averages. The building contracts on the above building were let seven months after the proposed budget was made. They totaled $195,445 as against the estimated $200,000. Not always can the consultant estimate this close.

It is very desirable that the community be brought into the evaluating of the plant, the determinating of the needs, the setting up of the construction schedule, and later, the actual planning of the school plant. Cooperative planning is here to stay.

CHAPTER 6

STUDY OF THE PUPIL TRANSPORTATION SYSTEM

When pupil transportation is to be surveyed, there are four chief questions which must be answered:

1. Is the service adequate?
2. Is the safety of pupils properly protected?
3. Does the system operate efficiently?
4. Are costs held at the lowest level possible while providing adequate, safe, and efficient transportation?

Adequacy, Safety, and Efficiency

The first three questions listed above can be answered with relatively little effort. Pupil transportation is adequate (a) when all pupils who should be transported are transported, (b) when each pupil who rides has a seat, and (c) when pupils are not required to spend an excessive amount of time on the bus. It is considered safe (a) when busses are properly maintained and inspected, (b) when bus drivers are carefully selected and adequately trained, and (c) when the conduct of pupils is carefully regulated and supervised. It is efficient when schedules are operated with precision and regularity.

Each bus should operate on a daily time schedule, a record of which should be in the hands of the supervisor of transportation. (See Exhibit A9 in the appendix.) The information supplied will indicate the relationship that exists between the pupil loads assigned and the seating capacity of the busses, and will provide a check on the minimum, average, and maximum time spent by pupils on trips to and from school. A check-up of busses in operation will determine how closely they follow the time schedule and whether or not there is need to alter the schedule.

Theoretically, safe transportation results from efforts to make it safe. Bus drivers should qualify physically (see Exhibit A10 in the appendix) and demonstrate skill in handling a large vehicle before they are selected for the job. They

should have personality traits which will enable them to maintain satisfactory conduct among bus pupils while maintaining excellent control of the bus. A training program for bus drivers should emphasize (a) rules and regulations for driving, (b) hazards of the route, (c) understanding of the mechanical operation of busses, (d) study of such factors as the reaction time of the driver, braking distance of vehicles at various speeds, etc., and (e) rules and regulations governing bus pupils.

The condition of busses should also be given careful attention. A skilled mechanic should inspect and service all busses regularly. A program of maintenance is much more conducive to safety than a program which waits till the bus breaks down before repairs are made.

As indicated earlier, the adequacy, efficiency, and safety of the program as it operates can be surveyed with little effort. It either is or is not adequate, efficient, and safe. Moreover, these aspects can generally be improved with relatively little change in the organization and administration of the system. On the other hand, if there is interest in economy, the pupil transportation survey becomes more extensive and more complex.

Economy

Economy depends upon many factors, any one of which may affect costs. Chief among these are (a) the size of the administrative unit itself, (b) the size of busses in use, (c) the length of bus routes, (d) the pattern of routes, (e) the ownership of busses, (f) the care and maintenance of busses, and (g) the purchase of equipment and supplies. As a basis for the decisions which must be made, the following conclusions can be substantiated from numerous studies of pupil transportation systems:

1. Transportation can usually be provided at less cost when busses are owned by the school than when they are owned privately. Incidentally, school ownership also makes possible greater efficiency, has a better safety record, and provides busses for use in curricular and extracurricular activities.

2. The benefits of school ownership are not great if the administrative unit is small. For greatest economy, a fleet

of 15 busses is desirable. This number can be maintained and serviced by a full-time mechanic-supervisor.

3. The length of bus routes should be governed by road conditions and the number of stops necessary. Ordinarily, a bus will average approximately 20 miles an hour en route. Under normal conditions, the maximum route length should therefore be 20 miles, since pupils should ordinarily not ride more than one hour. The cost per bus mile decreases as the length of the route increases.

4. The cost per pupil decreases as the seating capacity of the bus increases. Most roads will accommodate 48-passenger busses, and larger busses may be used when conditions are excellent.

5. One of the chief advantages of school ownership is that equipment and supplies may be purchased in quantity at reduced cost. The repair garage is also operated without profit.

6. Economy dictates that the total mileage of all busses be reduced to a minimum.

Route Patterns

Since the factors affecting economy are so inter-related and since the problem is so complex, the most effective procedure is to survey needs, plan a program based upon a consideration of all factors involved, and compare the end result with the system in operation. Needs are determined by spotting, on a map of the entire unit or proposed unit, the pupils who must be transported. Data will be available from the census (see Chapter 4) for this purpose. If the survey is for transportation only, a responsible group of individuals must be assigned the task of getting the information requested on the Census Blank (see Exhibit A2 in the appendix). The transportation map should show all roads suitable for bus travel rather than existing bus routes. School sites should be indicated on the map by symbols and the homes of elementary and high school pupils should then be located as exactly as possible on the map (see Figure 6.1).

Because the creation of route patterns is necessarily a trial-and-error procedure, it is wise to cover the spot map with a sheet of tracing paper and fix both to a board. Many unsuc-

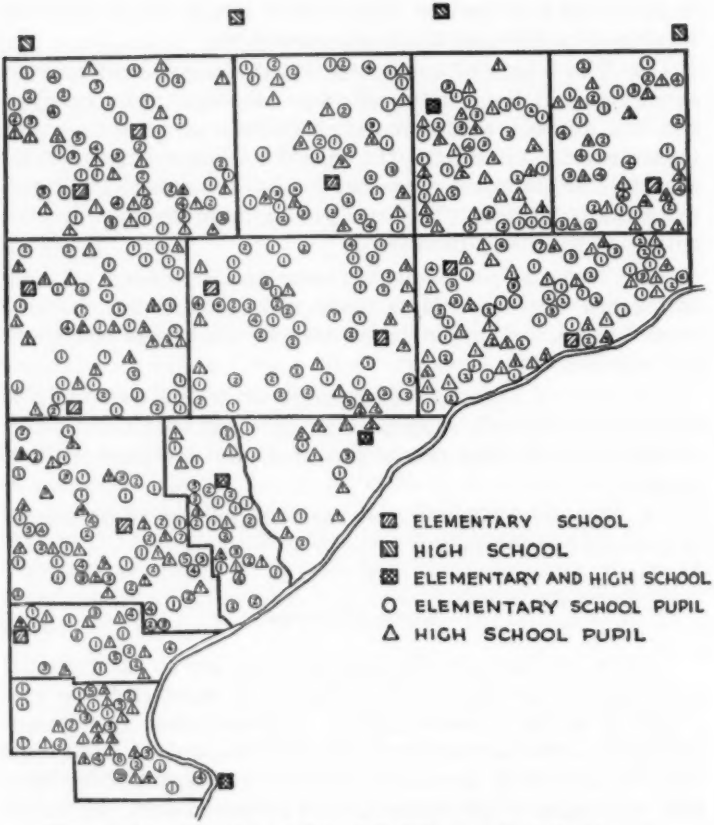

Figure 6.1. Location of School Buildings and of Residences of Pupils in ———————— County

cessful efforts can be made without destroying the usefulness of the spot map.

In general, routes should resemble the radii of a circle, with the school in the center whenever possible. Many irregularities and adaptations will, of course, be necessary because (a) roads are typically parallel to each other; (b) irregularities are many and varied; and (c) on those roads upon which the homes of bus pupils are not located, bus routes should be eliminated if possible.

In planning a route pattern, one route at a time should be worked out. The first route should conform to standards

for route length, pupil load, etc., and should appear to serve a logical area. A second route adjacent to it should then be devised, and the procedure continued until all of the territory is served. If each route is drawn in a different color, much confusion will be avoided. It is essential that statistics be kept for each route as it is completed. These should include the number of elementary pupils served, the number of high school pupils served, the schools to which the pupils are delivered, and the number of miles on the route. This information will be needed in order to equalize bus mileage and pupil loads after tentative route patterns have been worked out.

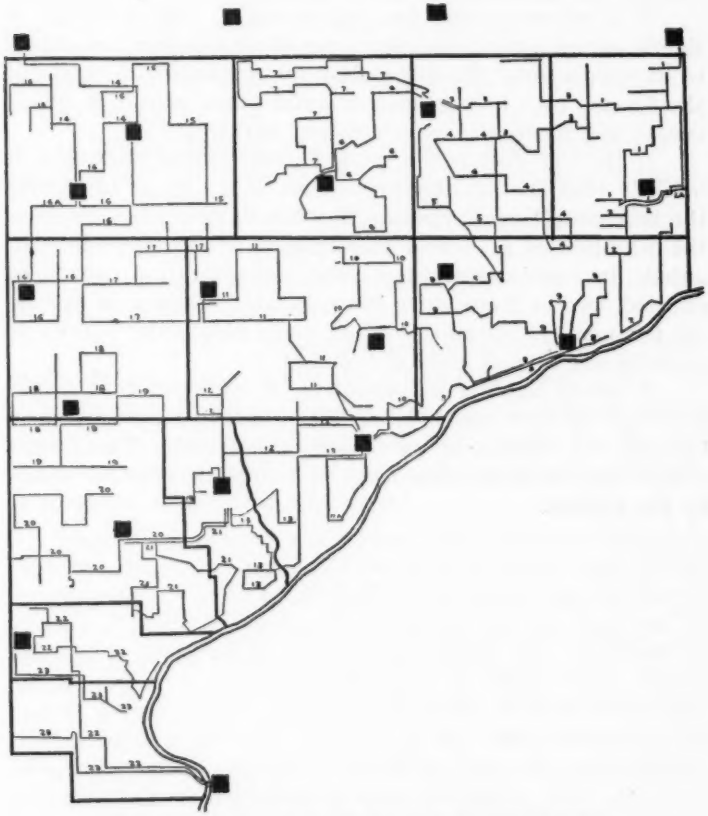

Figure 6.2. Bus Route Patterns Recommended for _____ County

When routes are synchronized as well as possible, the information will be needed by school officials and the bus supervisor as changes in pupil locations make revision of the routes necessary.

Plans for the Future

When the route patterns have been constructed, they may be transferred to a map of the area and numbered (see Figure 6.2). A table can then be developed which will compare the number of bus routes and the total bus mileage of the proposed plan with the number of bus routes and the total mileage of the system now in operation.

If a school system has not owned its school busses, it should set up a purchase plan, even though it does not expect to be able to own the entire fleet for a number of years. It should also plan to purchase or build a bus garage in which busses will be housed, serviced, and repaired.

If the bus fleet is too small for economical operation, it is likely that the administrative unit is too small to provide the best educational opportunities for children. In this case, the possibilities of school reorganization should be investigated. In some cases, when total reorganization cannot be effected, two or more units can profitably combine in providing for pupil transportation which could give better service to existing educational units at less cost.

A school bus garage should be so equipped that it will take care of most repair jobs. Tires, chains, batteries, gasoline, oil, etc., should be purchased at wholesale. The garage should also be sufficiently large to house all vehicles owned by the system.

CHAPTER 7

STUDY OF FINANCIAL RESOURCES TO MEET SCHOOL BUILDING NEEDS

Funds available for school building purposes are limited by constitutional and statutory provisions and, in addition, are often further subject to local approval. An accurate determination of available financial resources is, therefore, of prime importance when replacement or expansion of the school plant is under consideration. A study of the relationship of the need for capital funds and the financial ability of the school corporation to provide the needed funds is imperative for several reasons:

1. The educational program should not be jeopardized by diversion of funds from current operation to capital purposes.

2. Capital outlay costs should not place an undue additional burden on the taxpayer.

3. The amortization of capital costs should not involve unwarranted interest costs.

4. The cost of plant expansion must be within the limits of the financial resources of the school corporation.

5. The plan for obtaining funds for capital expansion must be acceptable to the public. In many states the financial plan must win the approval of voters, civil government officials, or state departments of education.

Major expenditures for capital outlay, such as buildings, grounds, and equipment, are often nonrecurring items in the school budget. In more than half of the states the only source of capital funds is revenue from an *ad valorem* local tax on real and personal property. In some states, local revenues for capital outlay may be supplemented by state funds. In all states, a few school corporations, under certain conditions, were eligible in 1952 for federal aid for school buildings. An occasional school corporation benefits from the philanthropy of individuals, foundations, or other groups.

Important Aspects of Local School Finance

The financial ability of a school corporation, the willingness or effort of the citizens to support public education, and the cost of educational services are aspects of school finance which frequently are emphasized in local school surveys.

The financial ability is usually studied in relation to the actual revenues within the limits of school law which can become available to the school corporation. Studies of income, sales, and gross product are seldom included in local school surveys, since the local corporation usually operates within a rigid framework of state law (49:16).

The financial effort is usually considered on the basis of past experience. How has the community supported education in past years? Has this support been adequate? What changes in financial policy should be considered by school officials?

The costs of educational services, for purposes of local school surveys, are usually studied by comparison of local conditions with generally accepted standards or with the cost in similar communities. The costs of school building projects are usually determined by school officials with the assistance of realtors, architects, contractors, and the school building consultant. Suggestions for studies of the cost of local school building needs are presented in Chapter 5 of this study.

The Ability of a Local School Corporation to Meet the Costs of Public Education

The financial ability of a local school corporation, as has been suggested previously, depends in most states on the nature of the state-imposed tax system. Financial data which should be analyzed are cash balances, indebtedness, possible tax yields, expenditures, assessed valuations, non-revenue receipts, and state and/or federal support. Such data may well be collected for a period of years as a basis for trend analysis. Financial data for other corporations similar to the local corporation in enrollment, population, or wealth should also be procured.

Financial data are often converted to a pupil, classroom, or other readily understood unit cost in order to facilitate analysis and comparison. The financial ability of a local school corporation over a period of years may be shown in a table

such as Table 7.1. This example shows the net assessed valuation of the school corporation, which is expressed as the valuation per public school pupil residing in the corporation. The index, based on the 1943 value, indicates the relative change in

TABLE 7.1. NET ASSESSED VALUATION, NUMBER OF PUPILS RESIDING, AND VALUATION PER PUPIL RESIDING IN AN INDIANA SCHOOL CORPORATION FROM 1943 THROUGH 1952

Year	Net assessed valuation	Number of pupils residing	Valuation per pupil residing	
			Amount	Index*
1943	$ 4,887,320	1,237	$3,951	100.0
1944	8,063,850	1,267	6,365	161.1
1945	8,068,820	1,482	6,119	154.9
1946	8,776,460	1,385	6,337	160.4
1947	8,781,360	1,365	6,433	162.8
1948	9,897,070	1,412	7,009	177.4
1949	12,326,570	1,467	8,403	212.7
1950	13,165,150	1,385	9,506	240.6
1951	13,957,930	1,435	9,727	246.2
1952	16,285,650	1,646	9,894	250.4

*Index based on the valuation per pupil in 1943.

financial ability. Such a table could readily be expressed in terms of either pupil enrollment, average daily membership, average daily attendance, or average daily attendance per residing pupil. The net assessed valuation, equalized valuation, adjusted valuation, or true valuation may be used, depending upon the nature of available records and the aspect of financial ability which is sought. Table 7.1 shows the local financial ability per pupil residing and indicates the trend in the amount of valuation per pupil residing and, consequently, in the per pupil building revenues available from local tax sources.

Unwarranted interpretation may be avoided by adjusting the values for each year to a cost of living or a school construction cost index. If such an adjustment is made, the data can be interpreted in terms of the purchasing power of the local tax revenues available. In constructing the table caution should be used in analyzing the effect of other variables which may have been operating, such as changes in tax or bond limitations during the period.

A table showing the same type of data for comparable school corporations is helpful in analyzing the ability of a local school corporation. The criterion usually used in choosing corporations for comparative purposes is population or enrollment. Care should be used to select corporations which are relatively free from other influencing factors. A highly industrial community is not suitable for comparison with a stable residential area; an elementary school district has little in common with a district operating only secondary schools.

It cannot be stressed too strongly that comparative data on finance should be gathered objectively and scientifically. School finance specialists in the state department of education or the state universities can be of help to the local school officials in suggesting suitable school corporations for comparison and available sources of school finance data. Meaningless and unrelated statistics presented in unfamiliar terms and unwarranted comparisons between diverse school corporations can only lead to confusion. Simplified data, carefully analyzed, and presented in easily read charts or graphs can be of value both to local officials and to the general public.

The data in Figure 7.1 enable the average individual with a limited technical background to readily compare the financial ability of a local school corporation to provide school revenues through local taxation with that of similar school corporations.

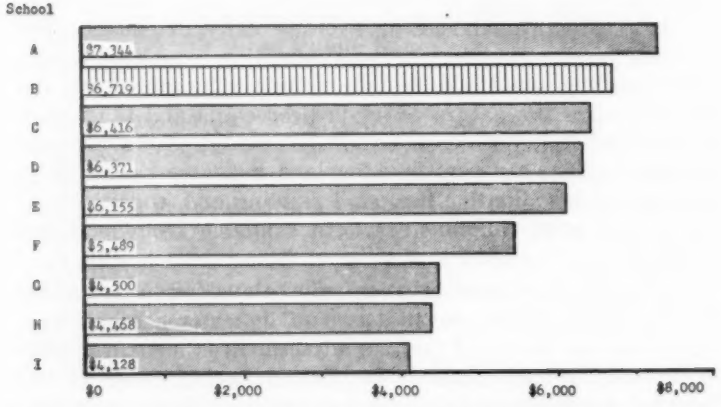

Figure 7.1. Assessed Valuation Per Pupil Residing in City B and in Eight Comparable Cities

Many factors other than local taxpaying ability affect the financial ability of a school corporation. Schedules for the payment of bonded indebtedness and temporary loans assist in the study of the financial ability. Building fund balances, unused sites, abandoned buildings, and other assets favorably affect the financial ability of a school corporation. Also, the possibility of obtaining increases in valuations and tax collections should not be overlooked.

The Effort of a Local School Corporation in Support of Its Schools

The effort of a community in support of its schools may be determined in a number of ways. Local tax rates, local tax revenues, percentage of local and state support of school costs, current expenditures, capital outlay, debt service, and other data from official reports may be used as a measure of effort. Comparison with other school corporations, analysis of a time series, and comparison with accepted criteria of school support often prove to be useful techniques when studying local school finance policy.

Such data, in order to facilitate ease of interpretation, are often expressed in terms of annual revenue or expenditure per pupil. Other commonly used measures are income or expenditure per classroom, per teacher unit, or per capita. Various weightings may be applied to these units. Revenue or expenditure per pupil in average daily membership, per elementary pupil in average daily attendance, or per secondary teacher unit are typical examples of weighted measures of financial effort in support of schools. The type of information available, the organization of the school administrative unit, and the purpose of the study must be considered when analyzing and presenting financial data.

Effort in Support of Education as Measured by Local School Tax Rates

A time series, such as is shown in Table 7.2, giving the local property tax rates of an Indiana school corporation, is of value in studying effort in support of education. The total school tax rate is shown as well as the rate for the tuition fund, special school fund, bond fund, cumulative building fund, and other minor funds. This school corporation has

TABLE 7.2. TAX RATES PAYABLE IN ———— SCHOOL CITY, INDIANA, FROM 1942 THROUGH 1951

Year payable	Total tax rate	School tax rates						
		For current purposes			For buildings			
		Tuition	Special	Total	Bond	Cumulative building fund	Total	Total
1942	$2.28	$ .10	$ .65	$ .75	$ .35		$ .35	$1.10
1943	2.10	.10	.65	.75	.35		.35	1.10
1944	2.28	.18	.70	.88	.40		.40	1.28
1945	2.23	.30	.75	1.05	.30		.30	1.35
1946	2.31	.28	.75	1.03	.04		.04	1.07
1947	2.61	.28	.80	1.08				1.08
1948	3.20	.50	1.15	1.65		$ .75	.75	2.40
1949	3.22	.80	.89	1.69		.75	.75	2.44
1950	3.36	1.00	.63	1.63	.05	.75	.80	2.43
1951	3.56	.87	.96	1.83		.75	.75	2.58

greatly increased its effort in support of its schools during the years 1942 through 1951 as indicated by the increase in the total school tax rate per $100 of valuation, and by the fact that in 1948 it added a 75-cent tax for school buildings only. The conclusion should not be made on the basis of such limited evidence, however, that this increase in effort was sufficient to result in a more adequate educational program. During this 10-year period, valuations of property were fluctuating and the purchasing power of the dollar was not stationary. The data in Table 7.2 may be adjusted to indicate the actual purchasing power of the dollar if a cost-of-living or school construction cost index is used.

A time series of the total school tax rate for the school corporation, adjusted by the cost of living index during this period, is given in Figure 7.2. These data are an indication that the increase in effort, as measured by the total school

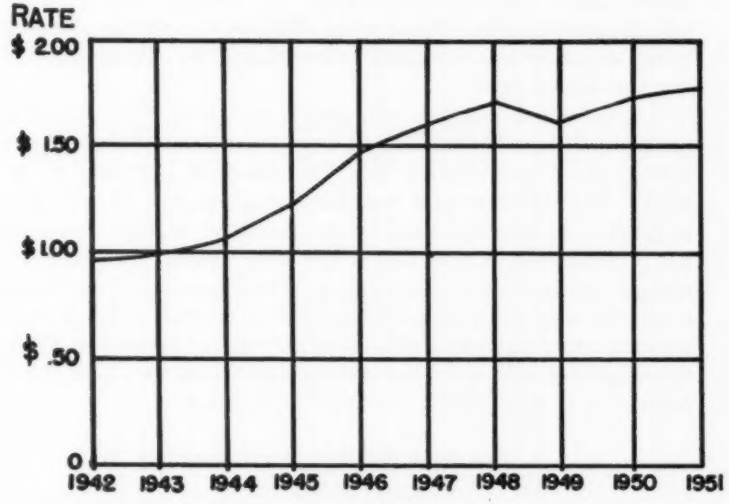

Figure 7.2. School Tax Rate per $100 Assessed Valuation in _____ City for the Years 1942 Through 1951, Adjusted to the Purchasing Power of the Dollar According to the Consumer's Price Index

tax rate of this school corporation, was more than sufficient to offset the declining purchasing power of the dollar during the 10-year period.

Expenditures as a Measure of Financial Effort in Support of Education

Although comparisons of expenditures of school corporations must be made with caution, it is usually possible to select corporations suitable for comparison. As has been mentioned previously, the corporations should be chosen in such manner that the factors influencing expenditures are similar in each corporation.

The data in Table 7.3 are for Indiana township school corporations having a population exceeding 10,000 in 1950. Each corporation operates large rural schools, is adjacent to an industrial city, and may be characterized as a suburban residential area. Each corporation operates a pupil transportation system in an area where pupil-sparsity is not an important factor. Since some of the corporations operate only elementary schools, transferring their secondary pupils to nearby high schools, comparison was limited to elementary school expenditures. These were expressed in terms of operational expenditures per pupil in average daily attendance during the school year.

Local school officials can secure assistance in making an analysis of their financial effort from state departments of education, state universities, and the research agencies of tax study organizations and teacher associations. As has been suggested previously, local school financial reports are often not comparable, since valuations and prices fluctuate and assessment practices often differ. The consultant services of a specialist in educational finance often proves to be of great value, as the local school administrator cannot be expected to be thoroughly familiar with financial conditions in other school corporations throughout the state and nation.

A Financial Program for Obtaining Capital Revenues

Since school administrators are not frequently faced with the problem of obtaining funds for replacement or expansion of school facilities, careful study of this problem is unusually important. The cost of school buildings has steadily increased since 1940. The school construction cost index for July, 1951, was 198.3 on the basis of the construction cost for 1939 (5). Plant replacement or expansion involves expenditures so great

TABLE 7.3. CURRENT OPERATING COST PER ELEMENTARY SCHOOL PUPIL IN AVERAGE DAILY ATTENDANCE IN 1951-1952 IN INDIANA SCHOOL TOWNSHIPS HAVING MORE THAN 10,000 INHABITANTS*

Township	Instruction	School operation	Maintenance	Fixed charges	Auxiliary activities	Total current expenditures	
						Amount	Rank
A	$ 97.96	$39.57	$11.12	$3.09	$1.79	$153.53	7
B	88.07	32.94	15.31	1.85		138.17	9
C	102.05	40.40	3.45	1.21		147.11	8
D	140.33	34.68	8.60	2.15	1.38	187.14	3
E	152.55	54.69	10.34	7.46		225.04	1
F	135.16	40.05	5.52	2.99		183.72	5
G	128.80	36.65	7.09	9.03	2.61	184.18	4
H	150.74	48.01	6.09	7.72	1.05	213.61	2
I	132.15	20.10	7.87	3.06	2.18	165.36	6

*Computed from the 1952 reports of the county superintendents of schools to the State Superintendent of Public Instruction, Form 12, Sec. 2, August, 1952.

that only very large and wealthy school corporations can meet them by means of allocation of current revenues. Capital funds in most states must be derived from limited local tax sources, often the *ad valorem* property tax. Tax and debt limitation laws are not infrequent. Often the expenditure of capital funds or the issuance of school building bonds is subject to a referendum of local voters. Some fiscally dependent school corporations must receive approval of school budgets from civil officials.

An expenditure for capital outlay may influence the educational future of a community for years to come. The school plant and the educational program which it is to house are closely related. Buildings are seldom rehabilitated or replaced until they have been used for 40 years or more. Financial obligations for school buildings may affect the financial condition of a community for half a century. No administrator or group of school officials can afford to bear the sole responsibility of all of the decisions involved in financial planning for school plant expansion, even if the final responsibility rests in them alone. In addition to basic analyses of financial data which have been previously discussed and illustrated by sample tables and figures, a careful analysis of the financial implications of the tax program for needed capital expansion should be made.

The study of the financial program for capital outlay necessarily differs from the study of that for current expenditures. Capital outlay for a school system is seldom a budgeted, annually-recurring expenditure. The procedures for obtaining school capital revenues are often subject to stringent tax limitations. Costs of capital outlay are less frequently the object of state support than are the costs of various functions of current operation. The future organization of the administrative unit is often involved in plans for school plant expansion. Local financial resources for the district, as organized, may be inadequate for meeting costs of needed capital outlay. New state legislation or local ordinances may be advisable. A reasonable relationship between the costs of capital outlay and current expenditures is desirable. Study of methods of financing the capital needs of the school district, if it is a defensible district, or of a suitable reorganized school district will usually result in a limited number of feasible plans for obtaining capital funds. Suitable criteria for select-

ing methods of obtaining capital funds for a local school corporation may be selected from the following:

1. The tax burden should not be excessive.
2. The plan of financing should meet existing legal restrictions.
3. The finance plan should not involve excessive interest costs.

Table 7.4 illustrates a plan for obtaining capital funds which was prepared for a proposed reorganized Indiana school corporation having an assessed valuation of $10,563,910. Three successive issues of serial bonds were to be supplemented by a 12-year building fund tax rate in the amount of 75 cents per $100 of assessed valuation.* Principal payments on the five-year serial bond issues will require a tax rate of 40 cents per $100 of valuation. The table has been projected on the basis of the present assessed valuation of property within

TABLE 7.4. ESTIMATED REVENUE AND SCHOOL TAX RATES FOR SCHOOL BUILDING PURPOSES IN THE PROPOSED REORGANIZED SCHOOL CORPORATION, AS OF JANUARY 1 EACH YEAR FROM 1951 THROUGH 1963, BASED ON AN ASSESSED VALUATION OF $10,563,910

Year	Bond levy	Annual building fund revenue	Cumulative total revenue	Estimated annual tax rate for buildings
1951	$211,278	$46,145*	$ 257,423*	$ .79
1952		79,230	336,653	1.19
1953		79,230	415,883	1.19
1954		79,230	495,113	1.19
1955		79,230	574,343	1.19
1956		79,230	864,851	1.19
1957	211,278	79,230	944,081	1.19
1958		79,230	1,023,311	1.19
1959		79,230	1,102,541	1.19
1960		79,230	1,181,771	1.19
1961		79,230	1,472,279	1.19
1962	211,278	79,230	1,551,509	1.19
1963		79,230	1,630,739	1.19
Total	$633,834	$996,905	$1,630,739	

*The balance in the building fund on January 1, 1951, was $46,145.

* An Indiana law permits the accumulation of building funds accruing from the revenue of an annual building tax limited to a rate not exceeding $1.25 per $100 of assessed valuation. (*Indiana Acts*, 1953).

the limits of the school corporation. Interest costs on this bonded indebtedness should not exceed the revenue of a four-cent tax rate per $100 of valuation. The estimated annual tax rate for capital funds and school building bonded debt service will probably not exceed $1.19 per $100. The total amount available for capital outlay by 1963 is equivalent to approximately 15 per cent of the actual assessed valuation, which is about 5 per cent of the true value of taxable property within the corporation.

The plan shown in Table 7.4 for obtaining funds for capital outlay was adopted by the newly reorganized school corporation. The plan provided for a uniform tax rate, low interest cost, and provision of funds as needed for new elementary and secondary facilities. It had the added advantage that the school corporation was not obligated by costly long-term indebtedness, since the bond schedule called for redemption of outstanding serial bonds within a five-year period. The first issue of short-term serial bonds was sold at a rate which, when adjusted by the amount of the premium received, resulted in an interest cost of less than $10,000 for the entire issue. This indicates that the total interest cost of the 1½ million dollar building program should not exceed $30,000, or approximately 2 per cent of the total estimated cost.

This school building finance plan was adopted by a school corporation in Indiana, a state which has a rigid constitutional school debt limit of 2 per cent of the actual assessed valuation. An alternative finance plan which was considered for this corporation, but not recommended, would have resulted in a cost of approximately $850,000 for interest alone, more than half the basic school construction cost. The latter plan would have made use of funds supplied by a school building holding corporation.*

*The Indiana non-profit school building holding corporation act was declared unconstitutional by a local court in 1952. An appeal was then taken to the State Supreme Court. The decision of the lower court was reversed in January, 1953.

TABLE 7.5. AMORTIZATION SCHEDULE FOR THE RETIREMENT OF HOLDING CORPORATION BONDS BY MEANS OF AN ANNUAL LEASE-RENTAL PAYMENT*

Year	Principal balance at first of year	Interest	Principal	Lease-rental payment
1954	$1,400,000	$ 49,000	$ 36,000	$ 85,000
1955	1,364,000	47,740	37,000	85,000
1956	1,327,000	46,445	38,000	85,000
1957	1,289,000	45,115	40,000	85,000
1958	1,249,000	43,715	41,000	85,000
1959	1,208,000	42,280	43,000	85,000
1960	1,165,000	40,775	44,000	85,000
1961	1,121,000	39,235	46,000	85,000
1962	1,075,000	37,625	48,000	85,000
1963	1,027,000	35,945	49,000	85,000
1964	978,000	34,230	50,000	85,000
1965	928,000	32,480	53,000	85,000
1966	875,000	30,625	54,000	85,000
1967	821,000	28,735	57,000	85,000
1968	764,000	26,740	58,000	85,000
1969	706,000	24,410	60,000	85,000
1970	646,000	22,610	62,000	85,000
1971	584,000	20,440	65,000	85,000
1972	519,000	18,165	67,000	85,000
1973	452,000	15,820	69,000	85,000
1974	383,000	13,405	72,000	85,000
1975	311,000	10,885	74,000	85,000
1976	237,000	8,295	76,000	85,000
1977	161,000	5,635	80,000	85,000
1978	81,000	2,835	81,000	83,485
Total		$723,485	$1,400,000	$2,123,485

*This computation was made for a 25-year rental agreement with interest at 3.5 per cent. The annual tax rate will approximate 61 cents on a valuation of $14,000,000.

Table 7.5 shows the amortization schedule for the retirement of bonds issued by a school building holding corporation. Indiana school law provides for such retirement by means of lease-rental payments to the holding corporation. Many legal problems are involved in the use of this plan of school building financing. Local school officials should obtain assistance from a legal firm specializing in school building bond problems before attempting the detailed computations necessary for preparing amortization schedules. This table presents data

from such a schedule which enable the reader to determine the interest cost and the number of years necessary for retirement of the obligation.

Data in Table 7.5 indicate that the lease-rental payments throughout the term of the lease would total more than two million dollars. Interest costs alone would amount to a total of more than $700,000 on a principal of less than 1½ million. The data clearly indicate the costly interest expense of long-term financing of school construction. The total cost of estimated interest and principal payments resulting from this financial plan are shown graphically in Figure 7.3.

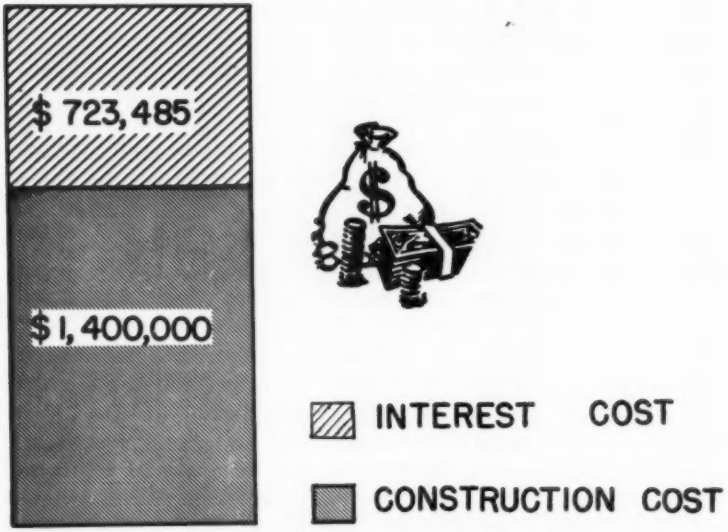

Figure 7.3. Cost of a Proposed Long-term Financing Plan for a $1,400,000 School Building at an Interest Rate of 3½ Per Cent

No plan of obtaining funds for school buildings should be arbitrarily adopted by a school corporation. Many factors must be studied, analyzed, and used as a guide when planning a capital revenue program which is suitable for a specific corporation. All the needs and obligations of civil units of government and overlapping school units must be considered. Financial data of these corporations should be included in the school finance study in order that no factors will be over-

looked which may directly or indirectly affect the financing of the schools. Many communities find it advantageous to approach the study of school finance with the assistance of a committee of local citizens who can often supply useful information and suggestions resulting from their wide experience in the community.

In the appendix of this study will be found suggested forms useful for obtaining data for school finance studies. (See Exhibits A11 to A16.) These are intended only as suggestions and should be supplemented by local officials, finance committees, or other interested groups. A study of the local schools, whether made locally or by outside specialists, must be based on the facts, many of which will be available only in the local community. Such a community study of school finance problems will help to insure that the decisions made are based on conditions actually existing in the community. The adoption by the public of a sound program of financing the schools is much more likely to result when the pertinent facts are arrived at through community participation and are freely made available to the public through meetings, the press, radio, television, and other available media. An informed public should be a major factor in obtaining approval for the school revenue program best suited to the conditions existing in the local community.

CHAPTER 8

THE WRITING AND INTERPRETATION OF THE SURVEY

The school survey must not be an end in itself; it must be a means to an end. Its purpose is to seek out the facts relating to the school and the community so that the school planning authorities will be better able to plan the school building program for the future. The success of the endeavor depends upon how well the community is informed concerning the findings and recommendations. An informed public is a sympathetic one—an uninformed one is, naturally, a suspicious one. It is important, therefore, that careful plans be laid and that every effort be put forth to inform the public effectively and understandingly.

The survey should be clearly presented in simple language that the layman can understand. If the report is published, it should be well illustrated and the significant findings should be presented in tables, charts, maps, and graphs. Wordy paragraphs should be avoided. It should be printed or reproduced in clear type and bound into a booklet of convenient size.

Many who will receive copies of the report may not want to read the entire survey but will be interested in reading a brief summary of the findings and recommendations. In order to satisfy both the extensive reader and the one who is concerned only with the findings and recommendations, the final chapter of the printed survey should summarize both the findings and the recommendations.

Much thought and careful consideration should be given to the recommendations. The members of the staff must be certain that they have considered all of the facts uncovered in the survey before making any decisions, and further, that their recommendations are consistent with the findings and with good educational practice. If, under certain circumstances, it becomes necessary to present alternate recommendations, the staff should not hesitate to do so. As a guide

for the formulation of sound recommendations the following criteria are given:

1. They should be definite.
2. They should be clear.
3. They should be practical.
4. They should be based on the findings of the survey.
5. They should be within the financial ability of the corporation.
6. They should provide for the school buildings at the time they are needed.
7. They should include a building schedule.

In many cases it is desirable to present the survey orally to two groups of people and in other cases to three or more. The number of presentations to be made will depend upon conditions under which the survey was conducted and the local attitude in each community toward the survey. In no case should the school authorities suppress or act upon the survey behind closed doors. Sooner or later the community will demand an accounting of the school budget and, unless the public is informed and sympathetic, the recommendations of the survey will not be carried out.

The first presentation should be to the legally constituted board of education or to a body appointed by them. This presentation should precede the final editing and printing of the survey.

Usually the second presentation is made at a public meeting which has been widely advertised and held at a convenient location—usually the high school auditorium—on a night which is relatively free of other public meetings.

There are various methods of making this presentation. One of the more popular methods is to have the presentation divided into three parts. The first part consists of presenting the findings with illustrated slides of tables, graphs, and maps, followed by the recommendations. This part is presented by one member of the survey staff—usually the director—in order to present the facts concisely and in continuity. In the second part of the presentation the survey staff sits as a panel and answers questions raised by the members of the audience. An atmosphere similar to that of a New England town meeting is simulated, and every effort is made to clarify any misunderstandings which any member of the audience may have.

The third part of the program consists of showing photographs reproduced on slide film of undesirable facilities observed by the survey staff in the local school system. This is followed by showing, in contrast, photographs of modern schools and facilities which the community could afford.

It sometimes is advantageous to make a presentation between the board meeting and the public meeting. In some communities certain individuals and bodies are opposed to the schools because they do not fully appreciate and understand the problems which confront the board and the school administration. In order to acquaint this minority group with the facts and thereby remove possible misunderstanding or reaction at the public meeting, such a meeting is held.

Following the oral presentations, plans should be made to distribute the printed survey to those who might be interested. In every community such leaders as the doctors; lawyers; labor, business, and industrial executives; ministers; P.T.A. members; city officials; and newspaper reporters will appreciate having a copy of the survey made available to them.

This should not be the end of the publicizing of the survey. Frequent occasions should be sought out to present the findings in illustrated form by competent members of the local committee. Small discussion groups should be held wherever interest is shown. The press is usually interested in carrying articles if someone will furnish them with the facts. In communities where radio or video facilities are available, these should be used in disseminating the findings and recommendations or in arranging a panel discussion on the issues of the survey.

If every opportunity is taken to inform the public thoroughly on the findings of the survey, there need be little concern about the outcome. Let it again be said for emphasis that an informed public is a trusting one which is likely to support the survey and an informed public is a suspicious one which is likely to oppose it.

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APPENDIX

EXHIBIT A1

OCCUPATIONS OF FATHERS AND MOTHERS*

Tabulation Sheet

Name of school corporation: _____

Name of tabulator: _____ Section no.: _____

Occupation	Fathers			Mothers		
	Tabulation	Total	Per cent†	Tabulation	Total	Per cent†
Businessman or manager						
Clerk-sales worker						
Farmer						
Homemaker only						
Professional worker						
Skilled laborer						
Unskilled laborer						
No report						
Grand total						

*Information taken from the FAMILY CENSUS RECORD.

† Tabulators should fill in Tabulation and Total columns only. Percentages will be filled in by the Indiana University School Survey Staff.

Exhibit A2

CENSUS RECORD OF RESIDENCES

Directions: Every residence in the census area should be entered on this record. Give the name of family living in the house or apartment and the address. Indicate the number assigned on the residence map in column (1). If there are no children under 18 years and none over 18 years in school, check column (4). If census of children is taken check column (5). If no one is at home, get the name of the family from a neighbor. Give the address and check column (6). If you have time, go back to the house the second time. Note the date when the house was built in column (7) if built since 1940. Note the date when the family moved into the corporation in column (8) if they have moved since 1940.

Number on residence map (1)	Name of family (2)	Address (3)	(4)	Census (5)	Not at home (6)	Built (7)	Moved (8)

Exhibit A3

FAMILY CENSUS RECORD

1. Family name _____ Date _____ Number assigned to family _____
2. Address _____ Phone no. _____ Township _____
3. Father: name _____ Place of birth _____
4. Mother: name _____ Place of birth _____

If child does not live with parents, fill in line 5.

5. Guardian: name _____ Relationship to child _____
6. Father/Guardian: occupation _____
7. Employer _____ City or town _____
8. Mother: occupation _____
9. Employer _____ City or town _____
10. Number of years the family has lived in the local school corporation _____

11. Children in school (list in order of age from oldest to youngest) _____

Name of child	Sex B G	Age Yrs. Mos.	Birthdate Mo. Day Yr.	Birthplace County State	Grade	Name of school

12. Children under school age (list in order of age from oldest to youngest)

Name of child	Sex B G	Age Yrs. Mos.	Birthdate Mo. Day Yr.	Birthplace County State	Name of school child will attend

13. Children between the ages of 6 and 16 who are not in school

Name of child	Sex B G	Age Yrs. Mos.	Birthdate Mo. Day Yr.	Birthplace County State	Reason for non-attendance

YOUR COMMUNITY CENTER

In order to learn where your natural community center is located, please answer the following questions. The answer will usually be the name of a town.

1. Where do you do your banking business? _____
2. Where do you do most of your trading? _____
3. Where is your telephone exchange located? _____
4. Where do you pay your utility bills? _____
5. Where do you attend church? _____
6. Where do you go mostly for recreation? _____
7. Where is the newspaper published which you read? _____
8. What is the location of your farm bureau? _____

Exhibit A4

PLACE OF BIRTH*

Tabulation Sheet

Name of school corporation: _____

Name of tabulator: _____ Section no.: _____

Place of birth	Fathers			Mothers			Children		
	Tab.	Total	%†	Tab.	Total	%†	Tab.	Total	%†
Within the city									
Within the township									
Within the county									
Within the state but outside the county									
Outside the state									
Grand total									

* Information taken from Family Census Record.

† Tabulators fill in "Tabulation" and "Total" columns only. Percentages will be filled in by the Indiana University School Survey Staff.

Exhibit A5

PUBLIC SCHOOL PUPILS IN EACH GRADE, AND YEAR OF BIRTH*

Tabulation Sheet

Name of school corporation: _____

Name of tabulator _____ Section no. _____

Year of birth	Born **before** legal school entrance date	Total	Born **after** legal school entrance date	Total
1952				
1951				
1950				
1949				
1948				
1947				
1946				
1945				
1944				
1943				
1942				
1941				
1940				
1939				
1938				
1937				
1936				
1935				
Total				

* Information taken from Family Census Record.

Exhibit A6

IN-SCHOOL AND PRESCHOOL CHILDREN CENSUS REPORT*

Tabulation Sheet

Name of school corporation _____

Name of tabulator: _____ Section no. _____

IN-SCHOOL CHILDREN

In-school grades	Tabulation	Total	In-school grades	Tabulation	Total
11			5		
10			4		
9			3		
8			2		
7			1		
6					

PRESCHOOL CHILDREN

Year born	Born **before** legal school entrance date	Total	Born **after** legal school entrance date	Total
1952				
1951				
1950				
1949				
1948				
1947				
1946				

*Information taken from Family Census Record. Only children who are enrolled in public schools or who will be enrolled in public schools when legal entrance age is reached should be included on this form. A separate form is provided for tabulating this information for parochial school children.

Exhibit A7

COMMUNITY CENTER CENSUS REPORT*

Tabulation Sheet

Name of school corporation _____

Name of tabulator _____ Section no. _____

Activity	Place	
Banking		
Trading		
Telephone		
Utility		
Church		
Recreation		
Newspaper		
Farm Bureau		

*Information taken from last section of Family Census Record.

EXHIBIT A8

SCHOOL BUILDING AND FACILITIES SURVEY

School system_____ Date_____

Building _____ Score_____

A. GENERAL INFORMATION

Type of school _____ Grades taught_____

Employees

Full-time principal_____ Assistant principal_____

Other administrative officers listed by title, e. g., deans, guidance directors, etc. _____

No. of teachers: Men_____ Women_____

No. of clerks: Full-time_____ Part-time_____ Other_____

Enrollment by grades: Kdg._____ 1st_____ 2nd_____ 3rd_____ 4th_____ 5th_____ 6th_____ 7th_____ 8th_____ 9th_____ 10th_____ 11th_____ 12th_____ PG_____ Total_____

B. BUILDING DATA

1. **Building**

Date built_____ Cost_____ Condition_____

Additions:

Type_____ Date built_____ Cost_____ Condition_____

Type_____ Date built_____ Cost_____ Condition_____

Type of construction: Masonry except trim (fireresistant)_____

Masonry with wood interior construction (semi-fireresistant) _____

Wood_____

(A floor plan of school should be included.)

2. **Rooms**

No. of rooms in building: General classrooms_____ Science laboratories (no. and type)_____

Auditorium_____ Gymnasium_____ Gym dressing rooms_____

Shops (no. and type) _____ Library_____

Administrative offices_____ Teachers' offices or workrooms_____ Health clinics_____ Music rooms_____

Art rooms_____ Commercial laboratories_____ Typing laboratories_____ Other special teaching rooms (no. and type) _____

Toilet rooms: For boys_____ For girls_____ For men (staff)_____ For women (staff)_____ Supply store rooms _____ Janitor's office_____ Janitor's supply room_____

Other rooms (no. and type)_____

Total number of rooms in building exclusive of corridors, closets, entrances, etc. (Should equal sum of above list)_____

3. Heating and ventilation

Type of heating_____ Satisfactory_____ Date of last repair or new installation_____ Ventilation (window, unit, wall louvres, central fan)_____ Satisfactory_____

4. Plumbing and sanitary facilities

No. of girls' water closets_____ No. of girls' lavatories_____ Located on what floors_____ No. of mirrors_____ Are towels and soap furnished?_____ No. of boys' lavatories_____ Located on what floors_____ No. of mirrors_____ Are towels and soap furnished?_____

No. of drinking fountains in basement_____ on first floor_____ on second floor_____

List any inadequate sanitary facilities_____

5. Illumination

Type in corridors_____ Is it adequate?_____

C. SITE AND PLAYGROUND

Site: Size in sq. ft._____ in acres_____ Does a street intercept playground or run between school building and playground?_____ Is the site well landscaped?_____

Playground equipment (list)_____

Diamonds or courts for football_____ Baseball_____ Softball_____ Tennis_____ Bandminton_____ Volleyball_____ Basketball_____ Hand ball_____ Others_____

Capacity of stadium_____

D. COMMUNITY DATA

Community served by school (Classify according to predominating type of home from which pupils come): Rural or small town_____ Urban, industrial_____ Urban, high-type residential_____ Urban, mixed population_____ Suburban_____

DRAWINGS

1. **Site.** Include site plans or make a drawing of the site, including school and other buildings, roads, playground apparatus, courts, and diamonds. Place dimensions on drawing. Use 17" x 22" graph paper.
2. **Building.** Include floor plans of buildings or make floor plans on 17" x 22" graph paper, giving dimensions for each room and corridor. Use a separate sheet for each floor. Place ceiling height notations on margin.

AGE-GRADE TABLE

Fill out age-grade table, giving the total number of boys and girls in each category. Use one table for each building.

PROGRAMS

Attach a copy of your daily schedule, showing grade and subject, teacher, classroom number, hour, and enrollment for all subjects of high school or departmentalized elementary school. For non-departmentalized elementary grades give room number and enrollment for each grade. Data should be for current semester.

EXHIBIT A9

DAILY TIME SCHEDULE

Bus number _____ Seating capacity _____

School _____ Maximum load at one time _____

Time of stops For pupils listed

A. M. _____ _____

_____ _____

_____ _____

_____ _____

_____ (Arrives at school) _____

P. M. _____ (Leaves school) _____

_____ _____

_____ _____

_____ _____

_____ _____

Driver _____

EXHIBIT A10

SCHOOL BUS DRIVER'S EXAMINATION REPORT

(Cross out words not applying and fill in blanks)

1. He is (free, not free) from tuberculosis as shown by a chest x-ray.
2. He is (free, not free) from infection as indicated by urinalysis and Wassermann tests.
3. He is (free, not free) from contagious skin diseases.
4. His nose and throat (are in normal condition, deviate from normal as described hereafter) _____

_____
5. He (has, has not) normal hearing in both ears.
6. His vision is described as

   Left eye _____ Corrected to _____

   Right eye _____ Corrected to _____
7. He has color perception for red and green _____
8. He (has, has not) normal use of both hands and both feet.
9. His heart (is, is not) in a satisfactory condition _____
10. His condition is otherwise (normal, abnormal in the following respects) _____

_____

I certify that I have examined _____, as recorded above, and find him in my judgment physically (qualified, unqualified) for school bus driver service.

_____ M. D.

Date _____

Exhibit A11

FINANCIAL SUPPORT FOR A SCHOOL CORPORATION

Data Sheet

Year	Net assessed valuation	Equalization factor	Equalized valuation	Amount of revenue from		
				Local taxes	State support	Other sources

Exhibit A12

ENROLLMENT DATA FOR A SCHOOL FINANCE STUDY

Data Sheet

School year	Fall enrollment				Spring enrollment			
	Total enrollment including transfers	Transfers		Average daily attendance	Total enrollment	Transfers		Average daily attendance
		In	Out			In	Out	

Exhibit A13

LISTING SCHOOL EXPENDITURES

Data Sheet

School year	Administration	Instruction	Operation	Maintenance	Fixed costs	Other	Debt service	Capital outlay	Total

Exhibit A14

TAX RATES ON LOCAL PROPERTY

Data Sheet

Year payable	School rates							Civil rate	Total rate
	Special	Tuition	Transportation	Other	Bond	Building	Total		

Exhibit A15

SCHEDULE OF INDEBTEDNESS

Data Sheet

Year	Bonded debt	Temporary loans	Total debt	Debt limit	Debt leeway

Exhibit A16

CAPITAL REVENUES AVAILABLE TO A SCHOOL CORPORATION FOR SIX YEARS

Data Sheet

Year	Available balances	Bond leeway	Annual building revenue	Other funds	Total revenue available	Estimated valuation	Tax rate

BULLETINS IN THE FIELD OF EDUCATION
INDIANA UNIVERSITY

The Bulletin of the school of Education, Indiana University, was first published in 1924 and has appeared regularly since that time. Research studies of interest to educators, proceedings of conferences held, and bibliographies of educational materials have been the principal fields touched upon in these bulletins. A complete list of the bulletins may be obtained from the School of Education upon request. The studies included in the present volume and in the two volumes immediately preceding it in date are listed below. Unless otherwise noted, these may be obtained for 75 cents each from the Indiana University Bookstore, Bloomington, Indiana.

Problems in School Administration. By Raleigh W. Holmstedt. Vol. XXVI, No. 1, 1950. 65 p.

Art in the Elementary Schools of Indiana. By Martha R. Carter and William H. Fox. Vol. XXVI, No. 2, 1950. 83 p.

Visual Environment for Schoolrooms (by Paul W. Seagers) *with Proceedings of the Indiana Illumination Conference.* Vol. XXVI, No. 3, 1950. 64 p.

Studies in Education: Abstracts of Theses, 1945-1949. Vol. XXVI, No. 4, 1950. 108 p.

Indiana and Midwest School Building Planning Conference: Proceedings. Vol. XXVI, No. 5, 1950. 75 p. $1.

An Examination of Enrollment and Budget Data for Indiana School Cities and Towns. By Maurice E. Stapley. Vol. XXVI, No. 6, 1950. 35 p.

Standardized Testing in the Schools of Indiana. By Roscoe A. Boyer and Merrill T. Eaton. Vol. XXVII, No. 1, 1951. 39 p.

Attitudes and Opinions of School Board Members in Indiana Cities and Towns. By Maurice E. Stapley. Vol. XXVII, No. 2, 1951. 42 p.

Some Characteristics of the Secondary School of the Future in the Light of Modern Developments. By Howard T. Batchelder and Shirley H. Engle. Vol. XXVII, No. 3, 1951. 34 p.

A Study of Some Opinions of High School Students With Regard to Teachers and Teaching. By Robert W. Richey and William H. Fox. Vol. XXVII, No. 4, 1951. 64 p.

Preprofessional Experiences in Educational Psychology: A Review of Opinion and a Critical Note. By Arthur P. Coladarci. Vol. XXVII, No. 5, 1951. 30 p.

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The Story of a Workshop. By Maurice E. Stapley. Vol. XXVIII, No. 1, 1952. 47 p. $1.

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Extracurricular Activities in Indiana High Schools: The General Program, and Student Participation in School Government. By Christian W. Jung and William H. Fox. Vol. XXVIII, No. 3, 1952. 85 p. $1.

Extracurricular Activities in Indiana High Schools: The Club Program. By Christian W. Jung and William H. Fox. Vol. XXVIII, No. 4, 1952. 53 p. $1.

A Study of High School Guidance Services in a Six-State Area. By H. Robert Kinker and William H. Fox. Vol. XXVIII, No. 6, 1952. 108 p.

The Local School Facilities Survey. By Harold H. Church, Paul W. Seagers, W. Monfort Barr, William H. Fox, and Maurice E. Stapley. Vol. XXIX, Nos. 1 and 2, 1953. 96 p. $1.